PHILIPS

Eleva Workspot 1.x - Training

Advanced User Functions

State: April 2007

Purpose of this Presentation

- General
  - Get an overview about all "advanced user" functions in Eleva Workspot 1.x
    These are available in the System task area
  - Be able to adapt / use all functions from here that are not described in a more specific presentation (like EVA, reject analysis, ...)

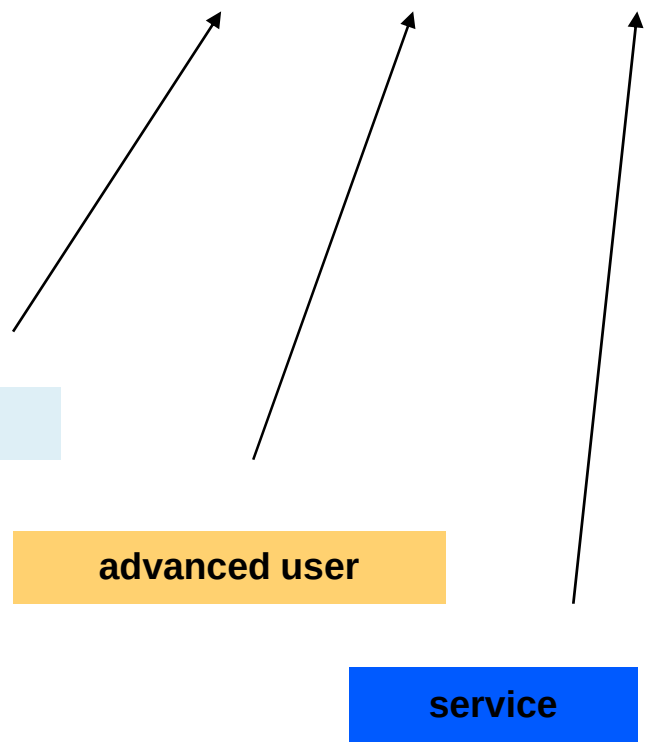
Content

Everything behind:

Hyperlinks:

1. General
   - System overview
   - General
   - Licenses
2. Export queue
3. Print queue
4. Quality Assurance
   - Advanced monitor calibration
   - Spatial touchscreen calibration
   - Printer calibration
   - DICOM Export
   - Test images
   - Reject analysis
   - Plate statistics
5. User defined settings
   - Patient list type
   - Use a barcode reader ?
   - Examination button layout
   - Examination sorting
   - Shutter border width
   - Use of virtual keyboard
   - User defined annotations
   - Modify image processing protocols
   - Export schemes for automatic export
   - Print destinations for automatic printing
   - Print medium types for automatic printing
   - Advanced print settings / templates
   - EVA tool
6. Administration
   - Date and Language
   - User accounts
   - Log settings

Before we start: Who is allowed to do what ?



Coloring scheme in this presentation

- Normal user = everybody
- Advanced user = "eleva" (*)
- Service user = "Service" (*)

Note (*):
The user names "eleva" and "Service" are fix for Eleva Workspot 1.x but may be different / changeable in following releases.

Remember ? 3 tools for customization & configuration

- **System**
  - Information
  - Queues
  - Quality Assurance
  - Settings ...

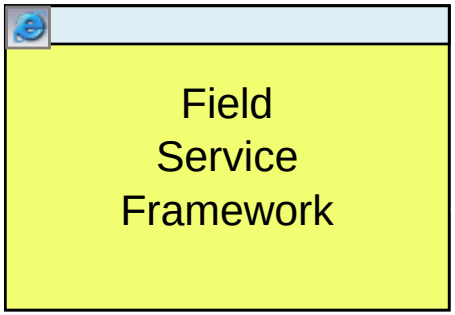
normal | advanced user | service

- **EVA tool**
  - Advanced user only
  - Anatomy database
  - Processing protocol usage
  - Auto export
  - Auto print
  - RIS Code mapping ...

advanced user | service

start in
System / Settings / EVA

- **FSF** (Field Service Framework)
  - only with service "dongle"
  - System parameters
  - DICOM configuration
  - Backup & restore ...



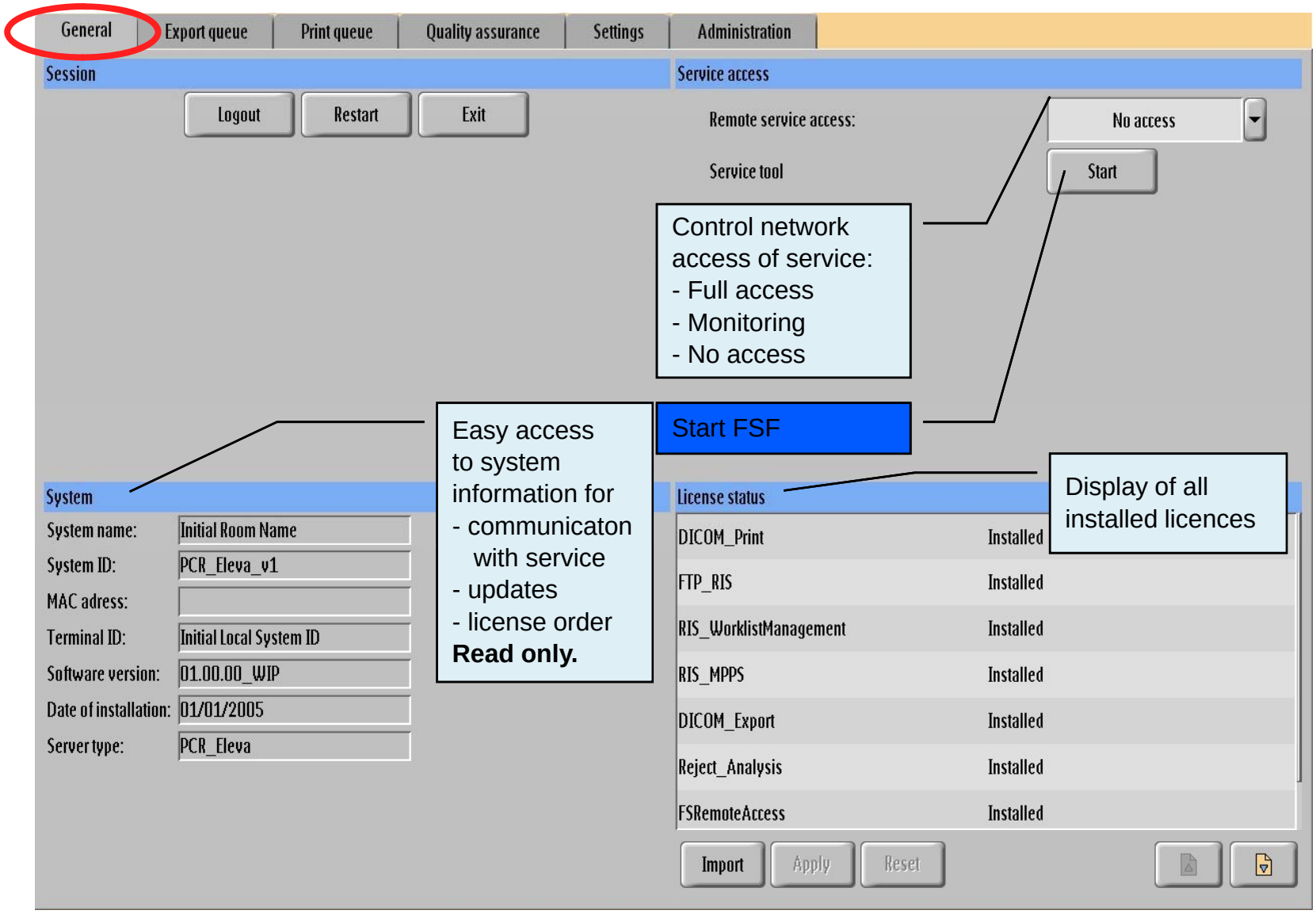
service

start in
System / General

System - what do you find here ?

- General + system parameters
  - Logout and system exit
  - Start FSF
  - Import license files
- Export and Print Queue
- Quality Assurance tools
  - Monitor & touch calibration
  - Printer calibration
  - Export calibration + params
  - Load test images
  - Reject analysis tool
  - Image plate statistics
- Settings
  - User interface and workflow
  - User defined text annotations
  - Processing protocol administration
  - Export destination mapping
  - Print destination mapping
  - Print templates and other definitions
  - Start EVA tool
- Administration
  - Date, Time, Country and Language
  - User accounts and passwords
  - Log level

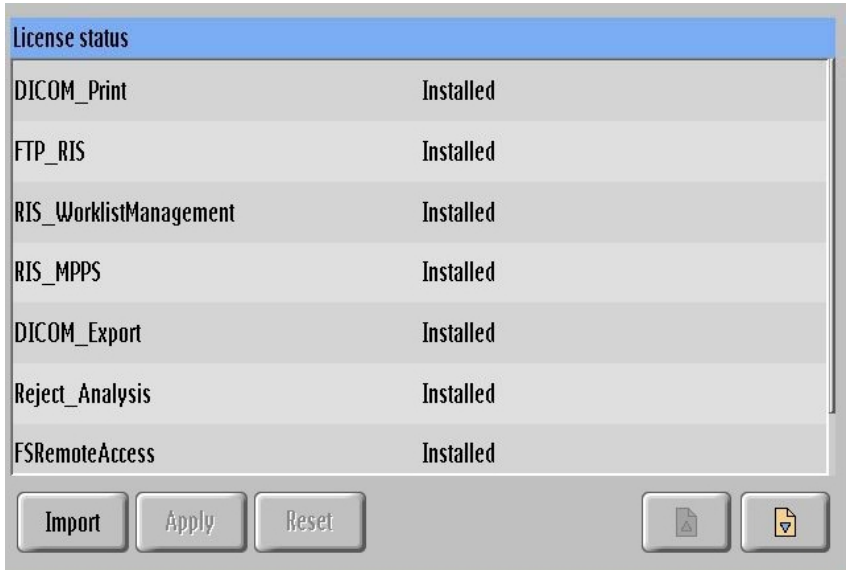
General


General
Export queue
Print queue
Quality assurance
Settings
Administration
Session
Logout
Restart
Exit
Service access
Remote service access:
No access
Service tool
Start
Control network access of service:
- Full access
- Monitoring
- No access
Start FSF
Easy access to system information for
- communicaton with service
- updates
- license order
Read only.
Display of all installed licences
System
System name: Initial Room Name
System ID: PCR_Eleva_v1
MAC adress:
Terminal ID: Initial Local System ID
Software version: 01.00.00_WIP
Date of installation: 01/01/2005
Server type: PCR_Eleva
License status
DICOM_Print Installed
FTP_RIS Installed
RIS_WorklistManagement Installed
RIS_MPPS Installed
DICOM_Export Installed
Reject_Analysis Installed
FSRemoteAccess Installed
Import
Apply
Reset

Licenses

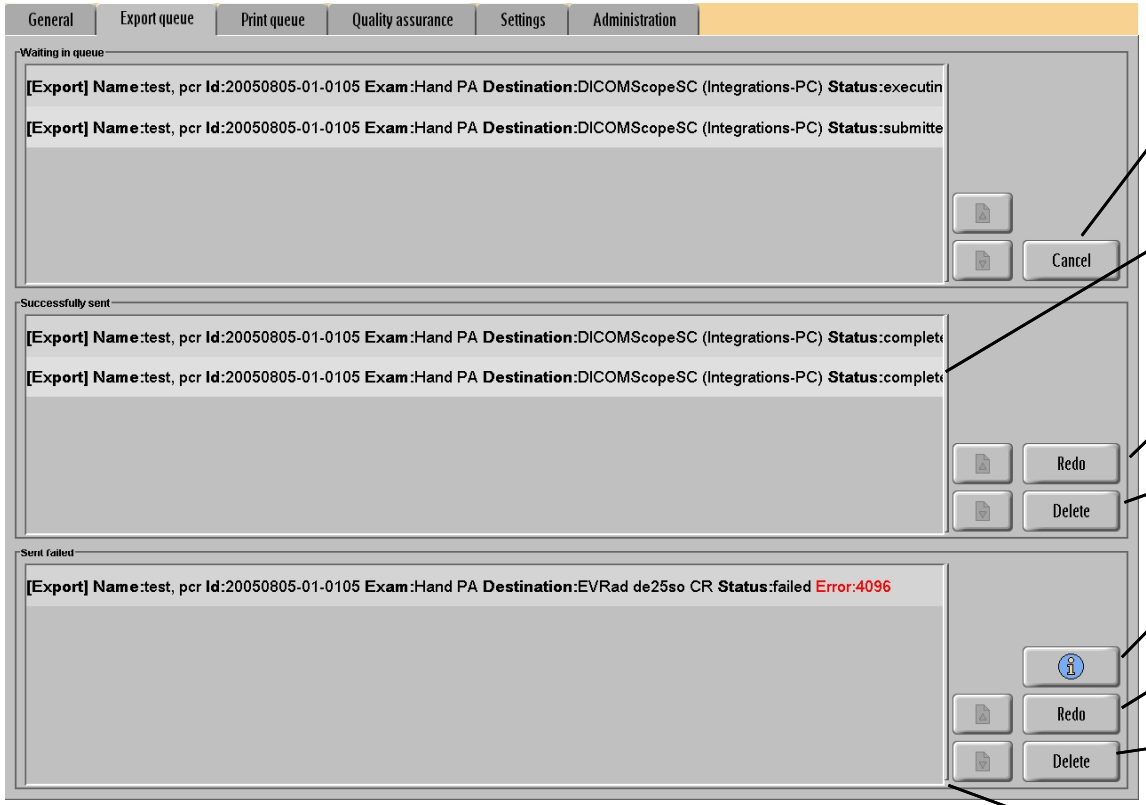
- License display
  - All available licenses
  - "*Installed*" means permanent
    or
    Expiration date is displayed

- How to import licenses
  - Insert medium with license file
    - memory stick
    - cd
    - diskette
  - Press "Import"
  - Eleva searches for file & loads it
  - New license situation on display for verification - not applied yet!
  - Press "Apply" to accept, or "Reset" to revert to last state.



The system sends a message
•if licenses are about to expire
•if licenses are expired.

Export queue



Cancel a submitted job.
Job will appear under "Failed"

List of completed jobs is automatically cleared in order of completion.

Redo a completed job.

Delete a completed job.

Why has this job failed ?

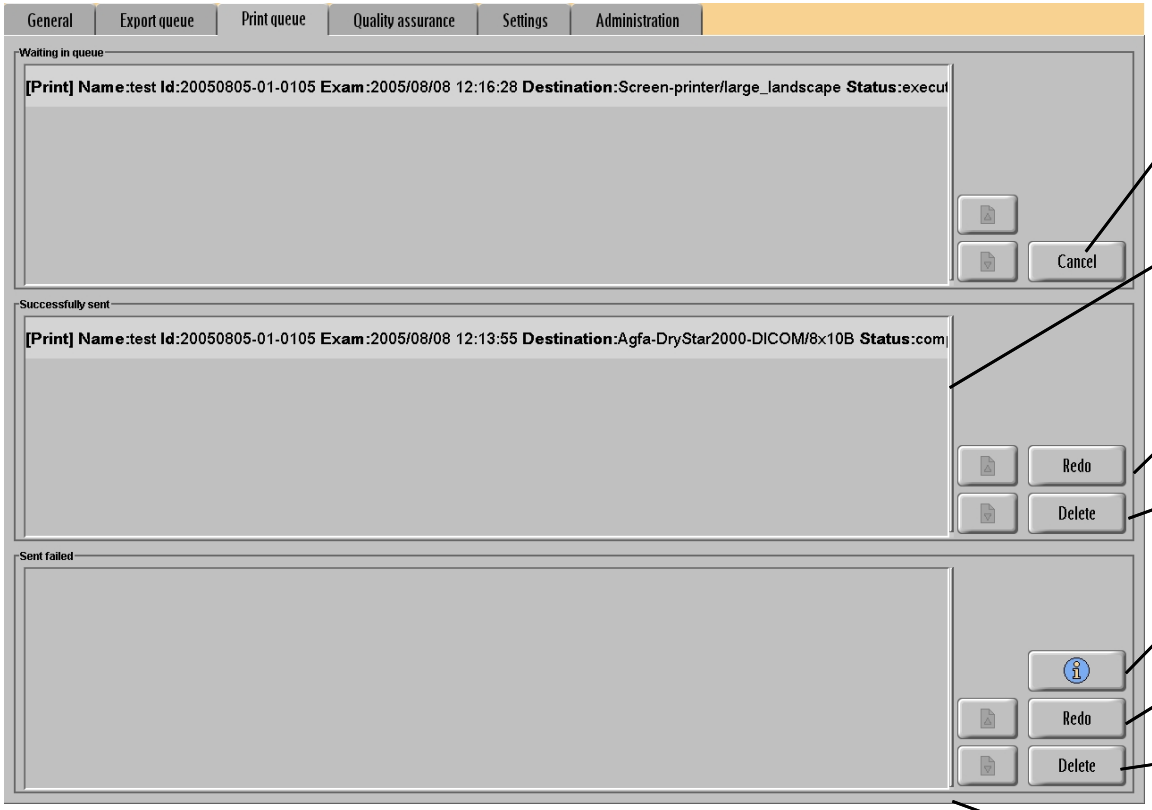
Redo a failed job.

Delete a failed job.

List of failed jobs is not cleared by system !
Must be done by user.

Print queue

Identical to export queue



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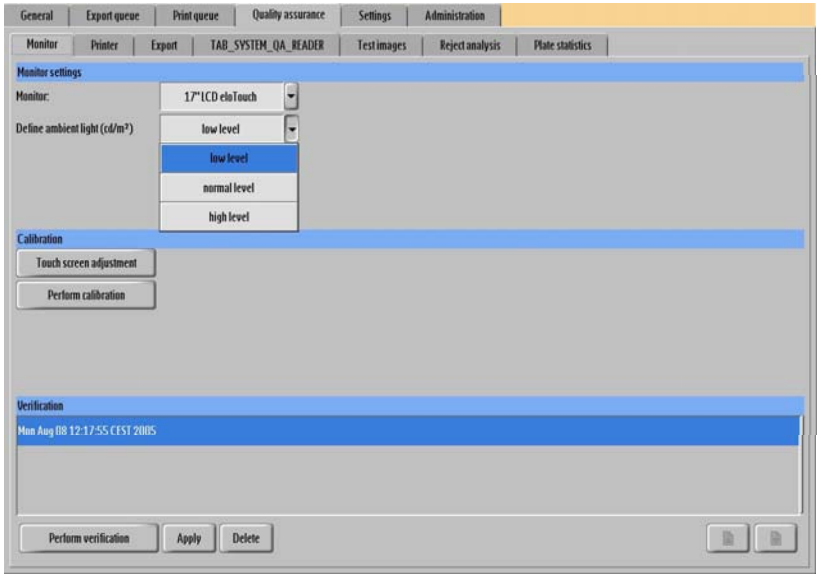
List of failed jobs is not cleared by system ! Must be done by user.

QA - Quality Assurance

- QA overview in this presentation
  - Advanced monitor calibration
  - Spatial touchscreen calibration
  - Printer calibration
  - Test images
  - Reject analysis
  - Plate statistics



- Details about
  - calibrations,
  - reject analysis
  - How to etc.

  in seperate presentation "**Quality Assurance**"

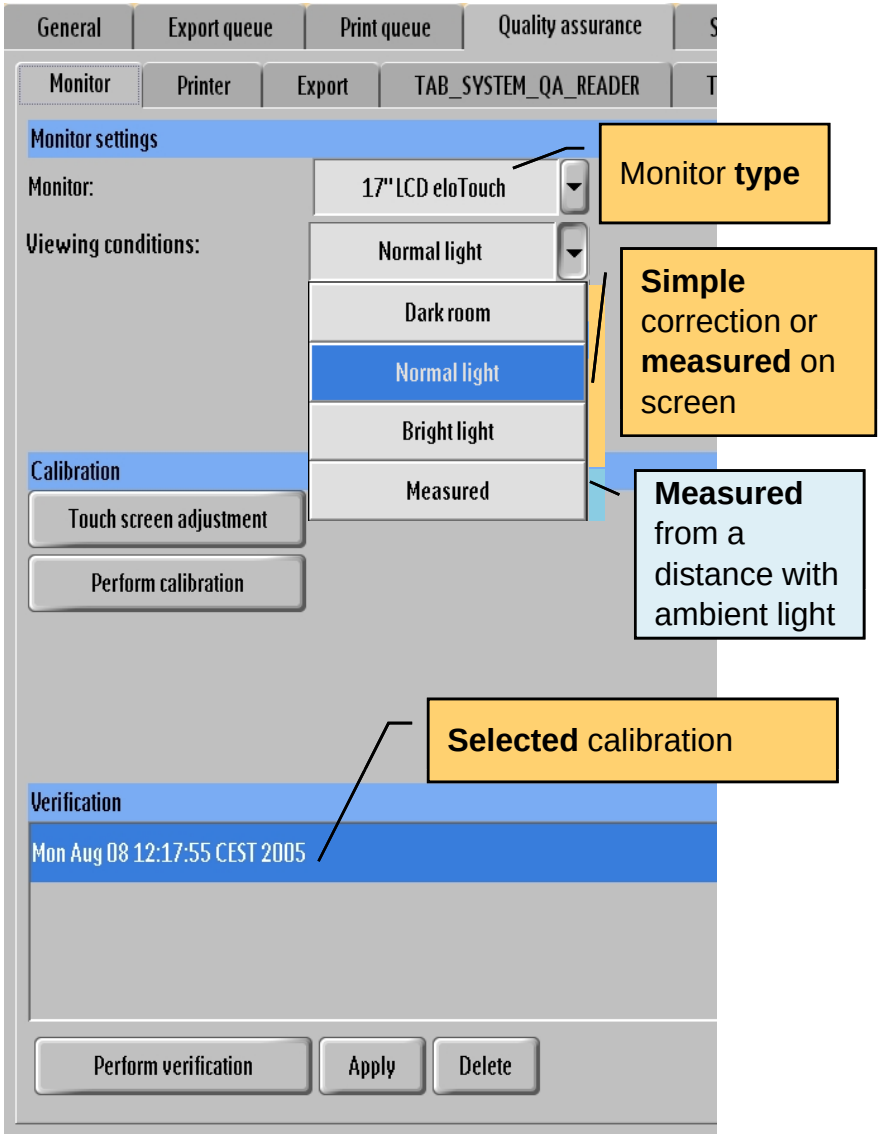
QA / Monitor display

Eleva Workspot 1.x displays images always with DICOM greyscale display standard

A correction LUT (lookup table) is applied during the image display.
- Factory provided curves work fine!
- Can be replaced by measured curves
  - because monitors may drift away
  - to adapt exactly to viewing condition

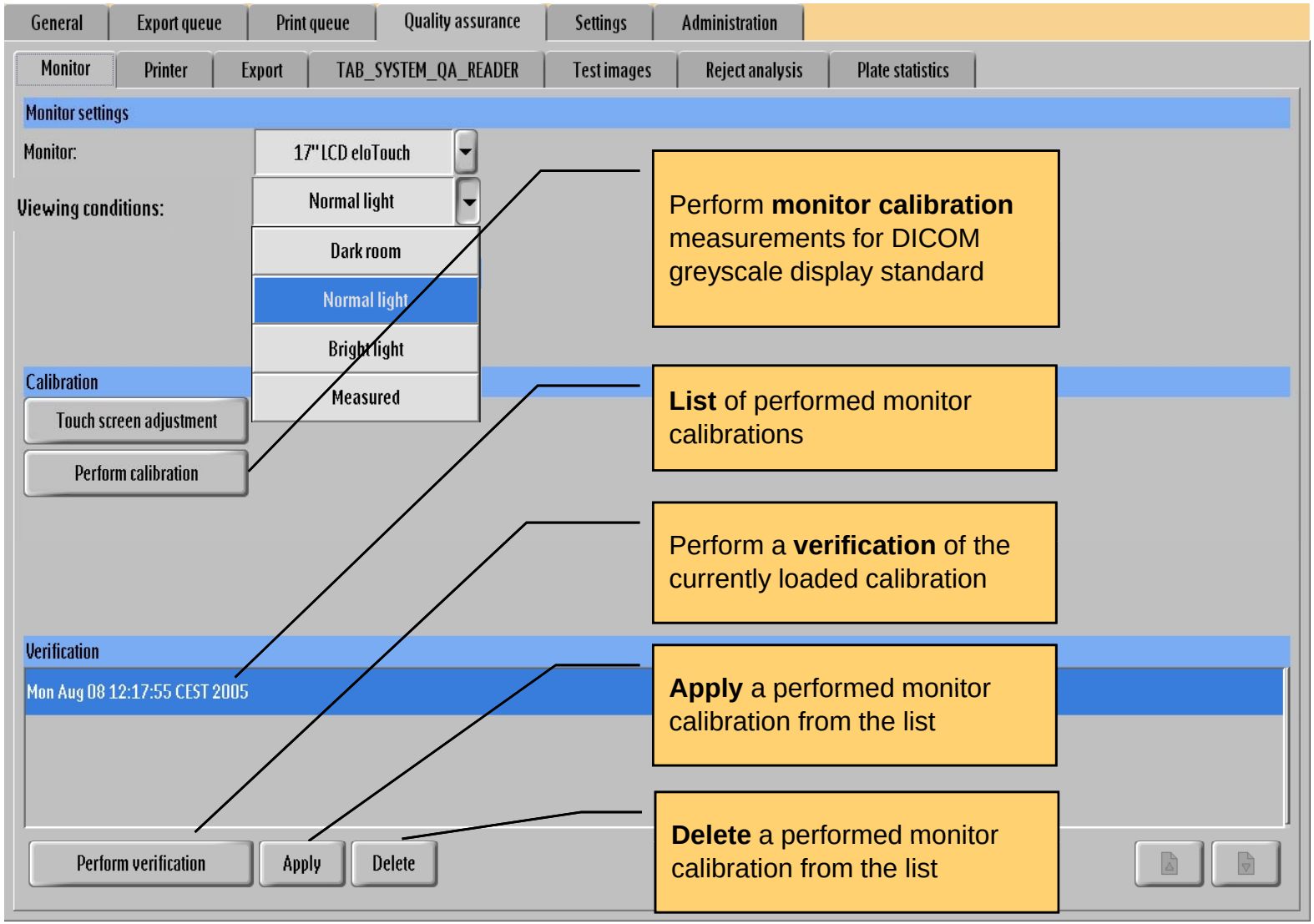
> 2 methods for monitor calibration

- Without ambient light (*)
  (place light meter on screen)
  + room light factor
  > normal user can select from
  dark, medium, bright
- With ambient light (measure with light meter from a distance)
  + no room light factor
  > select "measured"

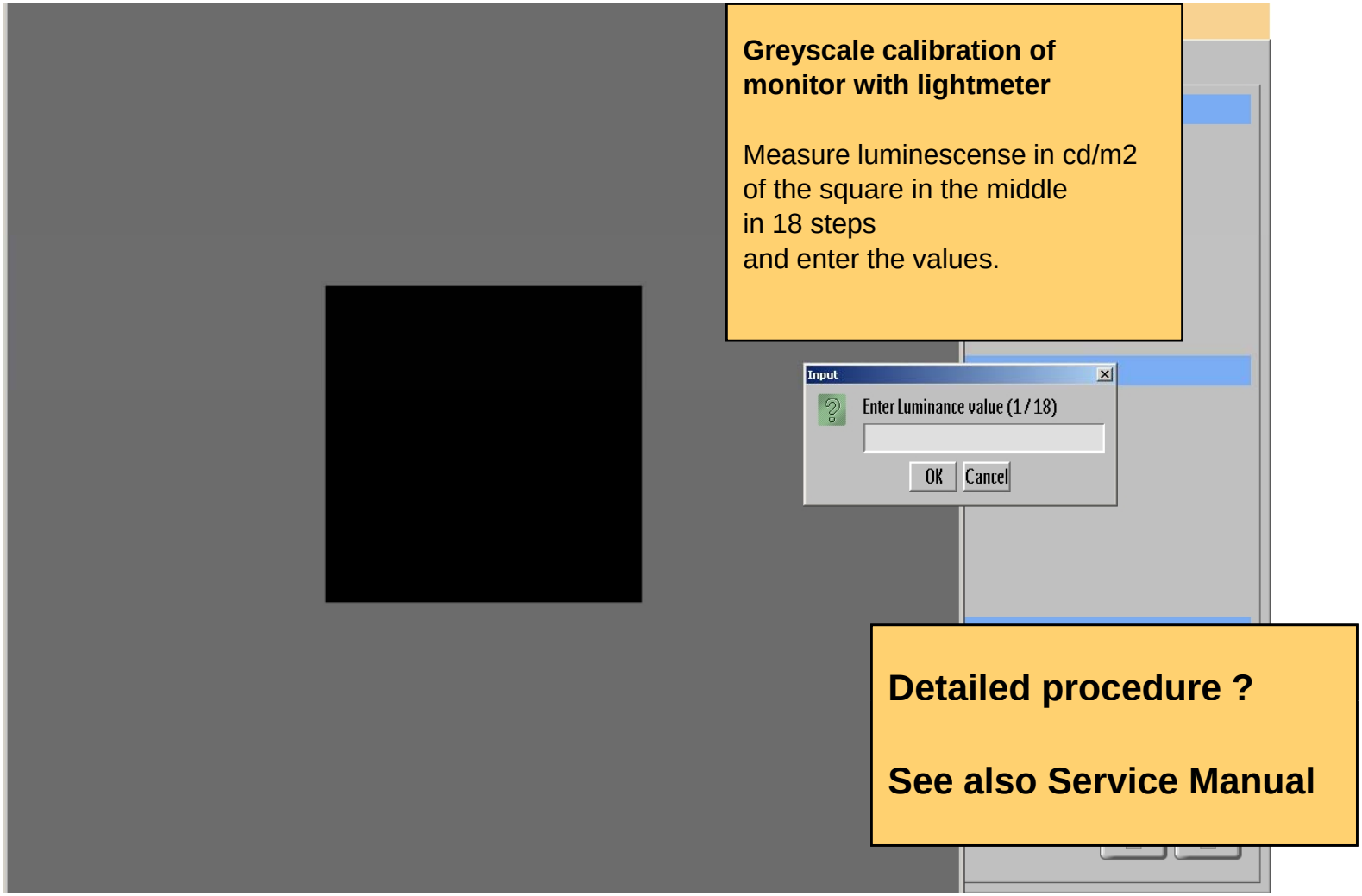


(*) factory provided curve is without ambient light, so please choose the current viewing condition

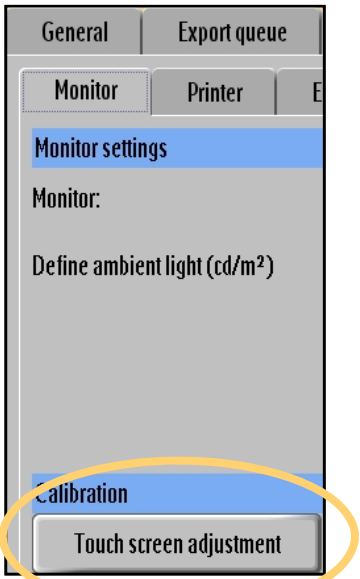
QA / Advanced monitor calibration



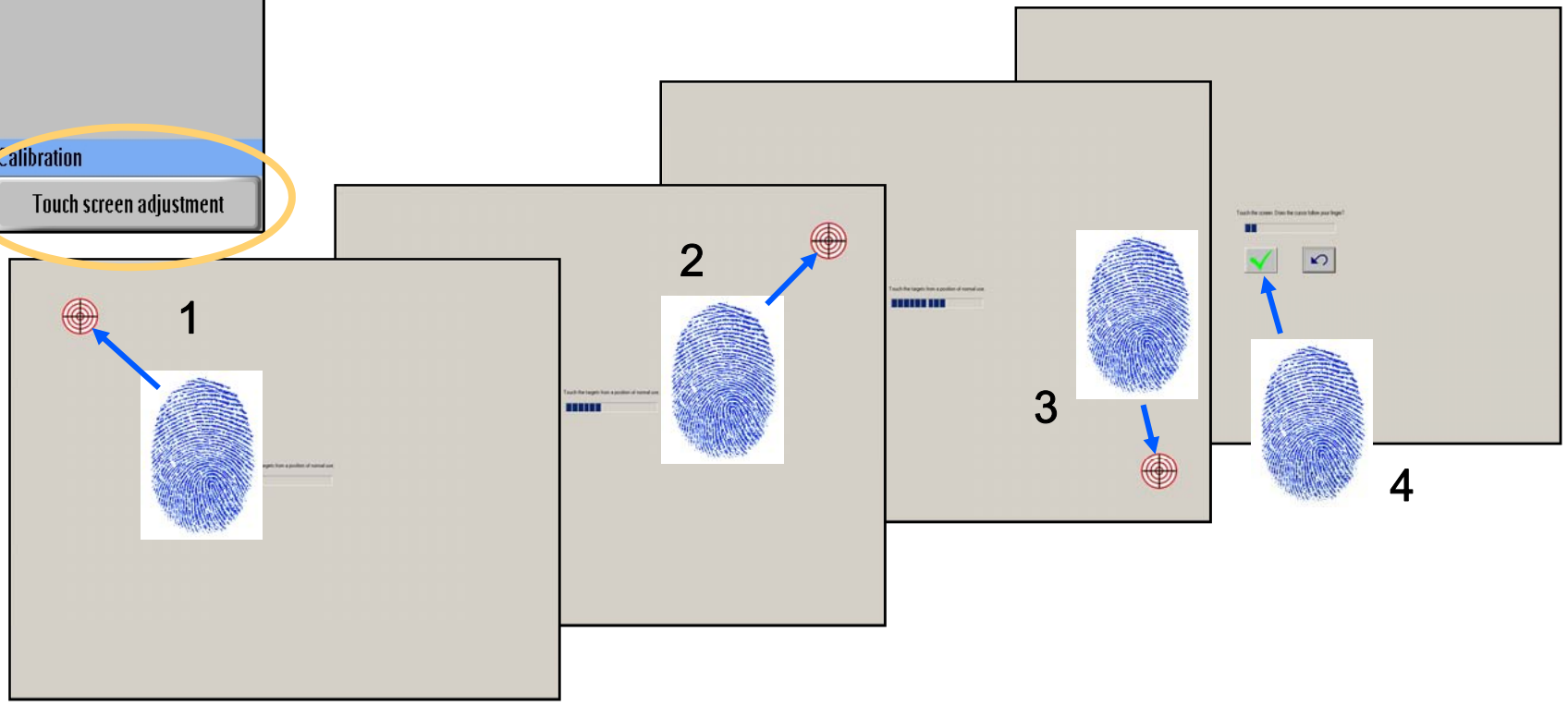
Advanced monitor calibration


Greyscale calibration of monitor with lightmeter
Measure luminescense in cd/m2 of the square in the middle in 18 steps and enter the values.
Input
Enter Luminance value (1 / 18)
OK
Cancel
Detailed procedure ?
See also Service Manual

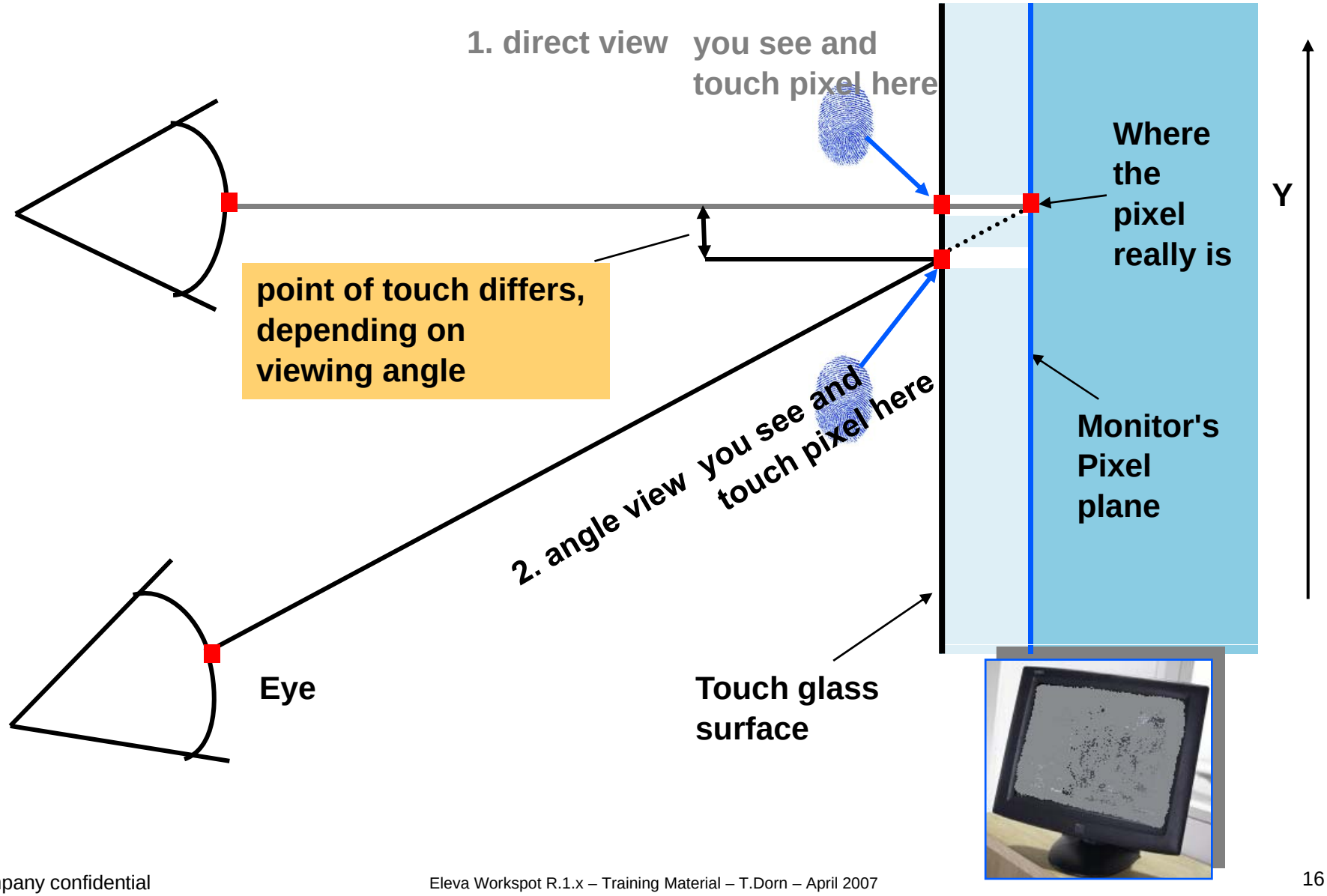
Spatial Touchscreen Calibration



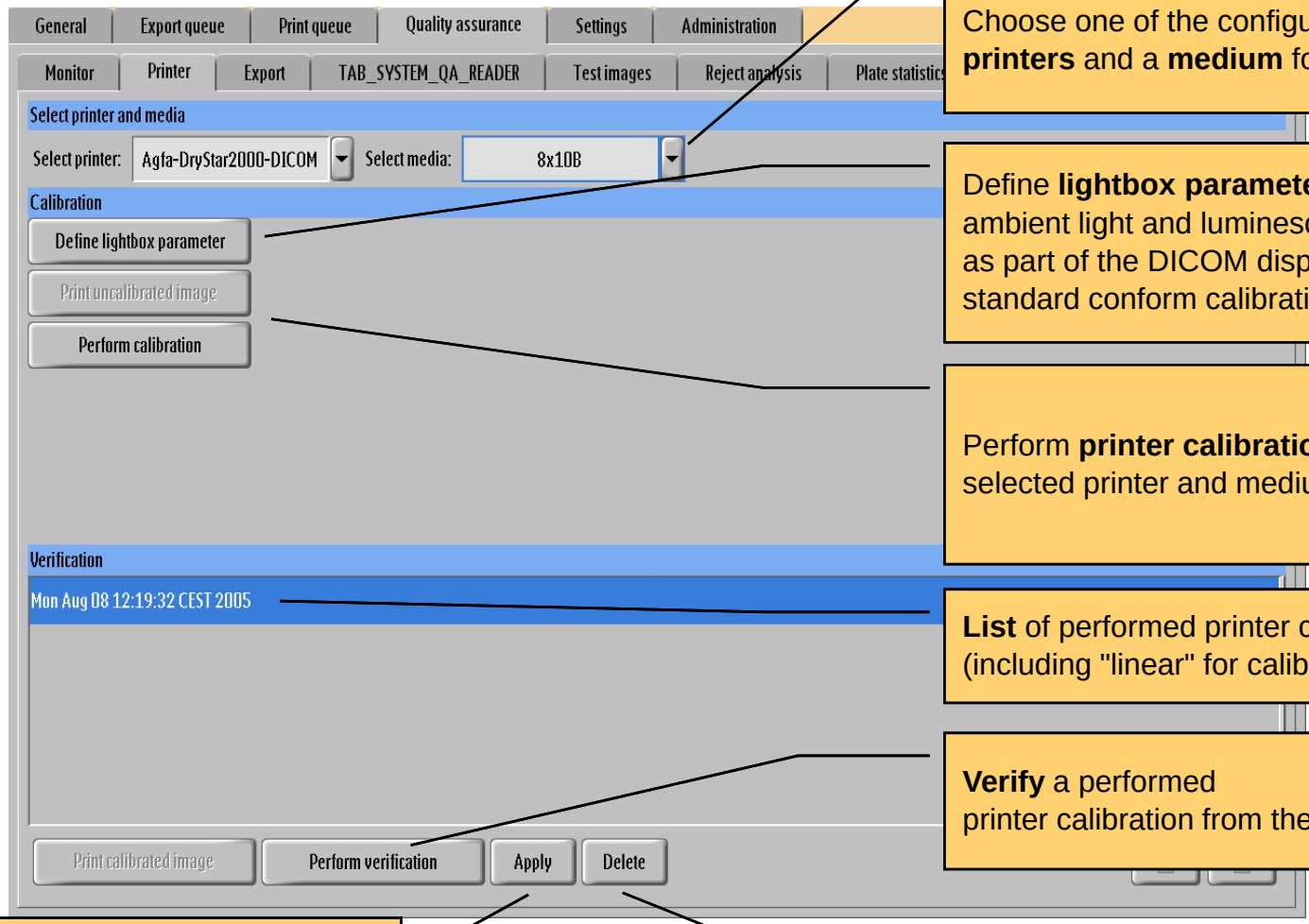
- **To align the "virtual mouse click" position with finger tip position**
- **Necessary**
  - **after software / hardware change**
  - **viewing angle changed (monitor position / people's size ...)**
- **On screen guidance always English (!)**



Why touch screen calibration ?


1. direct view you see and touch pixel here
Where the pixel really is
Y
point of touch differs, depending on viewing angle
2. angle view you see and touch pixel here
Monitor's Pixel plane
Eye
Touch glass surface

QA / Printer calibration



Choose one of the configured **printers** and a **medium** for this printer

Define **lightbox parameters** ambient light and luminescense as part of the DICOM display standard conform calibration

Perform **printer calibration** for selected printer and medium

List of performed printer calibrations, (including "linear" for calibration print)

Verify a performed printer calibration from the list

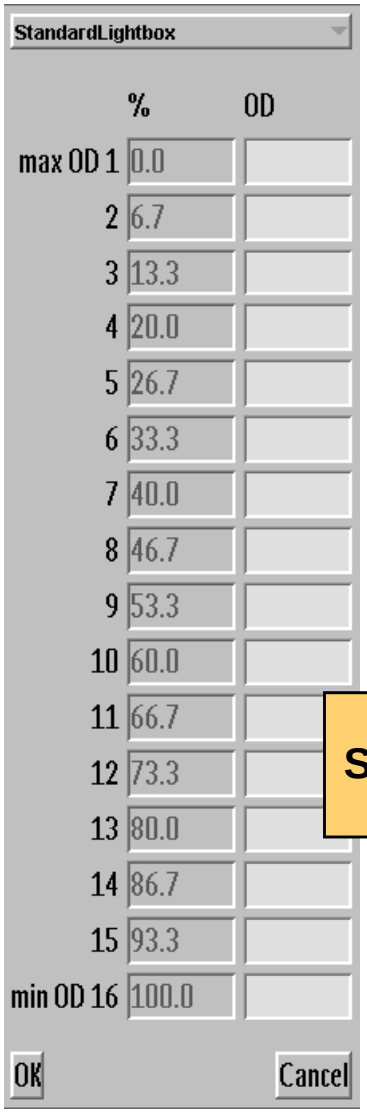
Apply the selected printer calibration to the selected printer / medium

Delete the selected printer calibration from the list

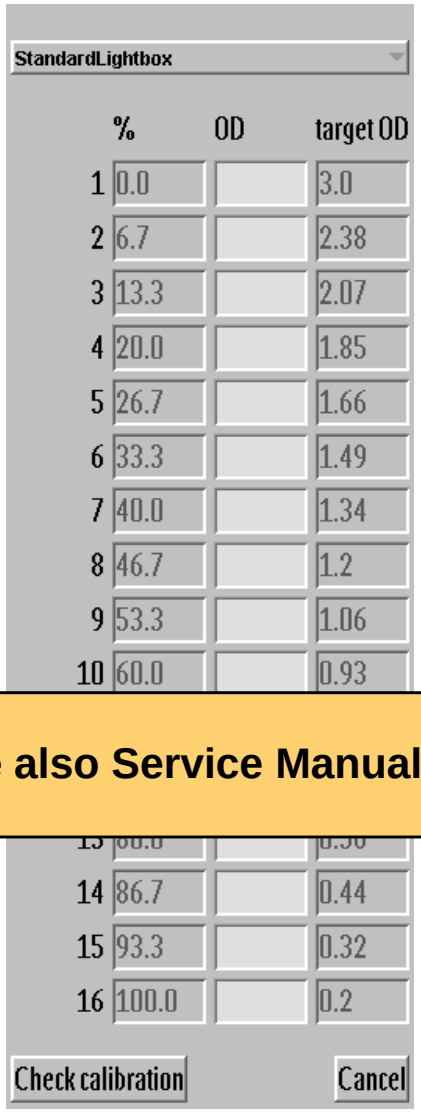
Printer calibration

1. Load test images to test patient
2. Go to System / QA / Printer, select "linear" calibration for printer and medium
3. Select test patient and print "Printer Calibration" image
4. Go to System / QA / Printer, select Printer and Medium
5. Press "Perform Calibration"
6. Measure printout and enter values into form
7. New calibration is saved in list of performed calibration
8. Select and apply calibration to printer with "Apply"
9. Perform verification, same principle as calibration

calibration

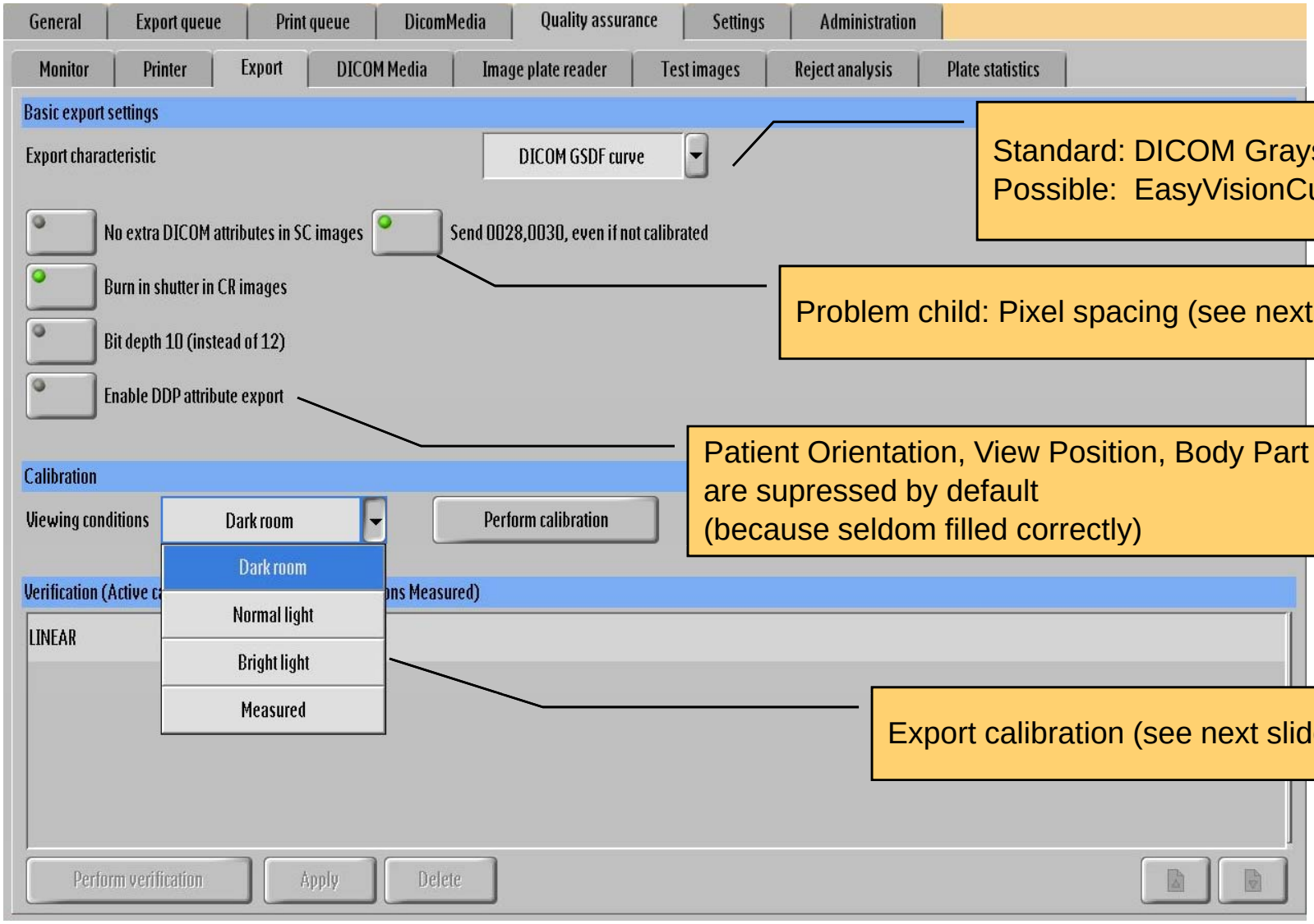


verification



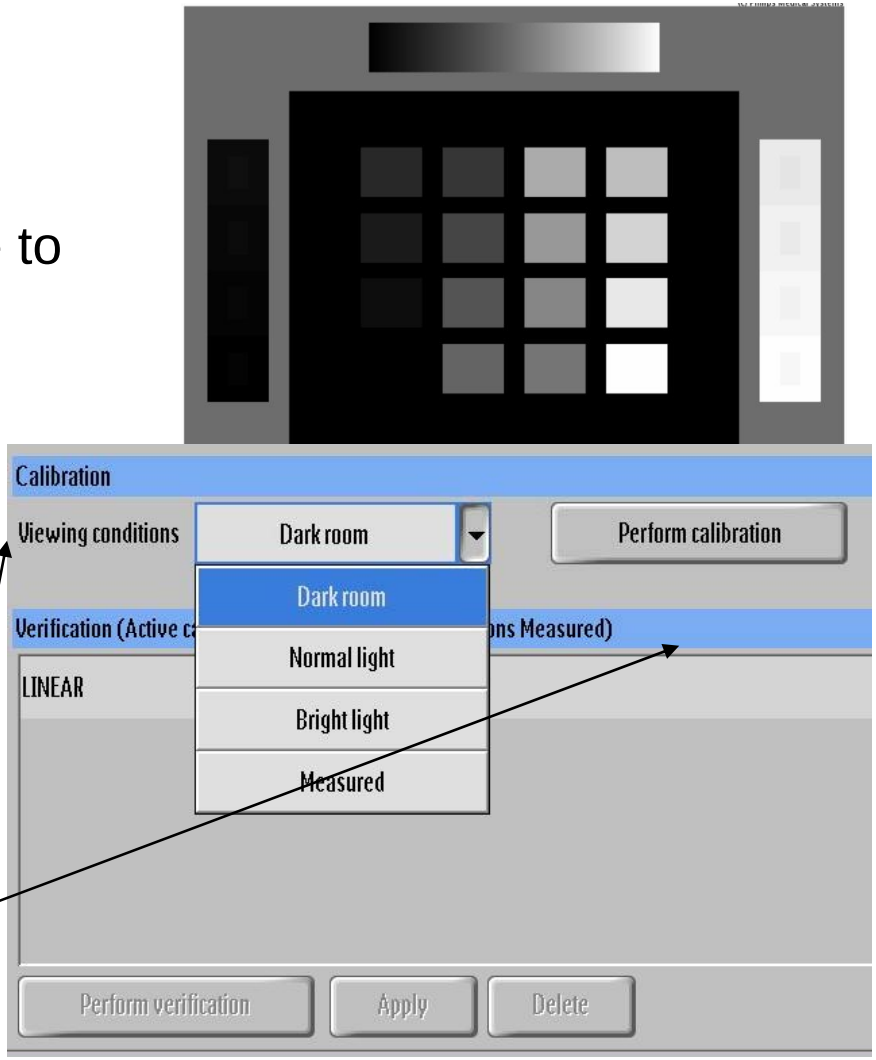
See also Service Manual

QA - DICOM Export settings in System



DICOM Export calibration (in DiDi called Measure Mode)

1. Set Calibration to LINEAR
2. Load Test Images
3. Send Export Calibration test image to the PACS
4. Measure 16 steps (typically with light-meter on monitor surface)
5. Click Calibration (state of „Viewing Conditions“ does not matter)
6. Enter values
7. Select proper „Viewing condition“ to **add** ambient light virtually
8. Click apply
9. Double check message



What if ... (ctd)

Doctor complains, he can't measure on the images in the PACS

Reason may be:

The PACS workstation needs the DICOM attribute (0028,0030) **Image Pixel Spacing** for its measurement tool.

Background information:

There are 2 attributes for communicating the size of the image /pixels.

- **Imager** Pixel Spacing (0018,1164). Pixel size of the detector/image plate.
- **Image** Pixel Spacing (0028,0030). This is defined for the patient plane!!

The Eleva Workspot system does not know where the patient plane is, of course.

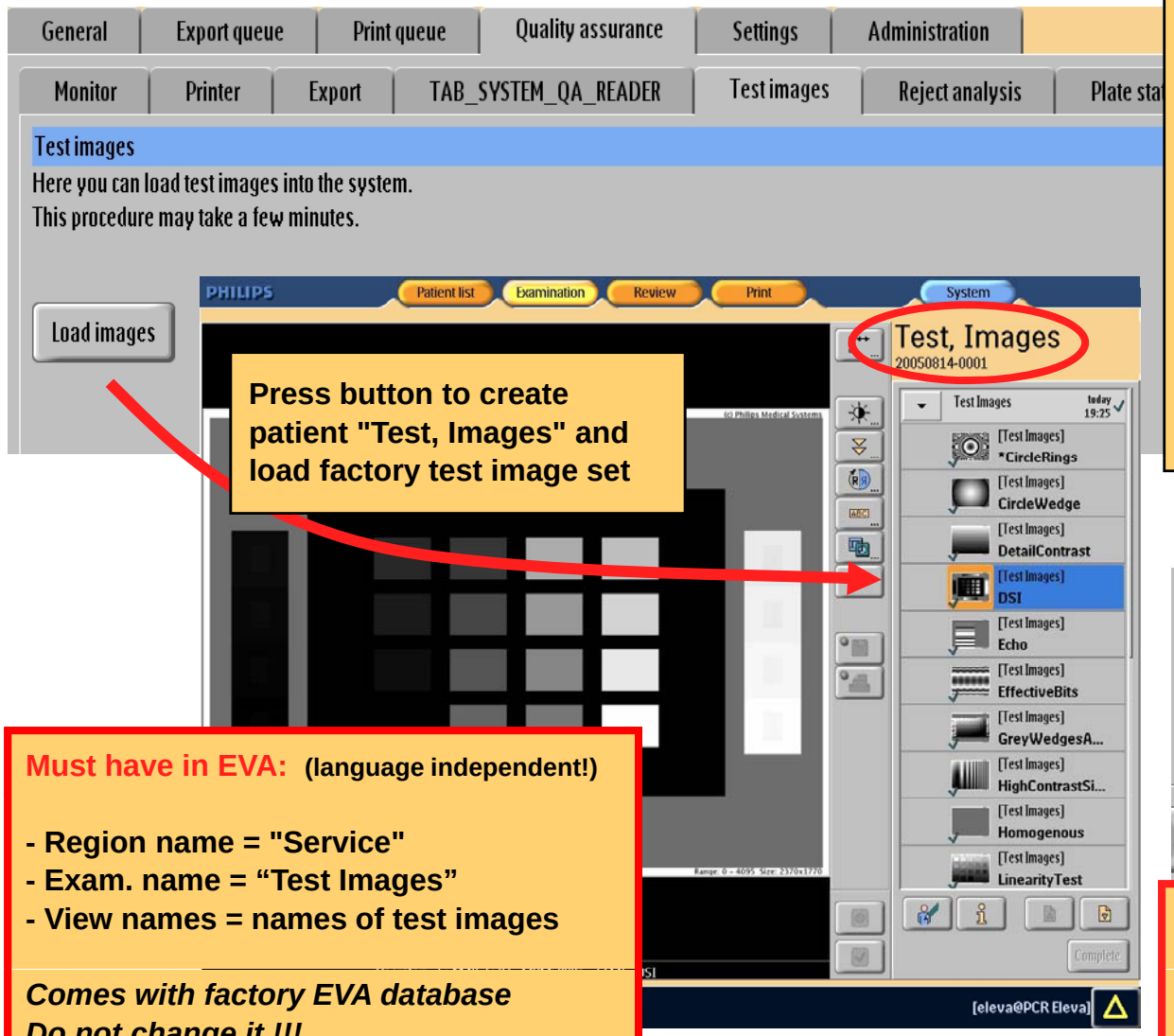
With R1.0x it was sent **as a copy** of (0018,1164), but this can lead to confusion and errors! So it was taken out by default.

This (0028,0030) attribute is by default only sent by Eleva Workspot, if either

- the user has applied a **manual image calibration** (R1.1 license must be available)
- in

/QA/Export: **"Send 0028,0030, even if not calibrated"** is switched to **ON**.

QA / Test images



Press button to create patient "Test, Images" and load factory test image set

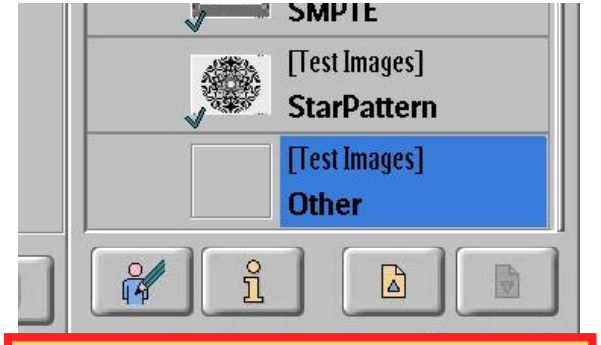
Must have in EVA: **(language independent!)**

- **Region name = "Service"**
- **Exam. name = “Test Images”**
- **View names = names of test images**

Comes with factory EVA database
Do not change it !!!

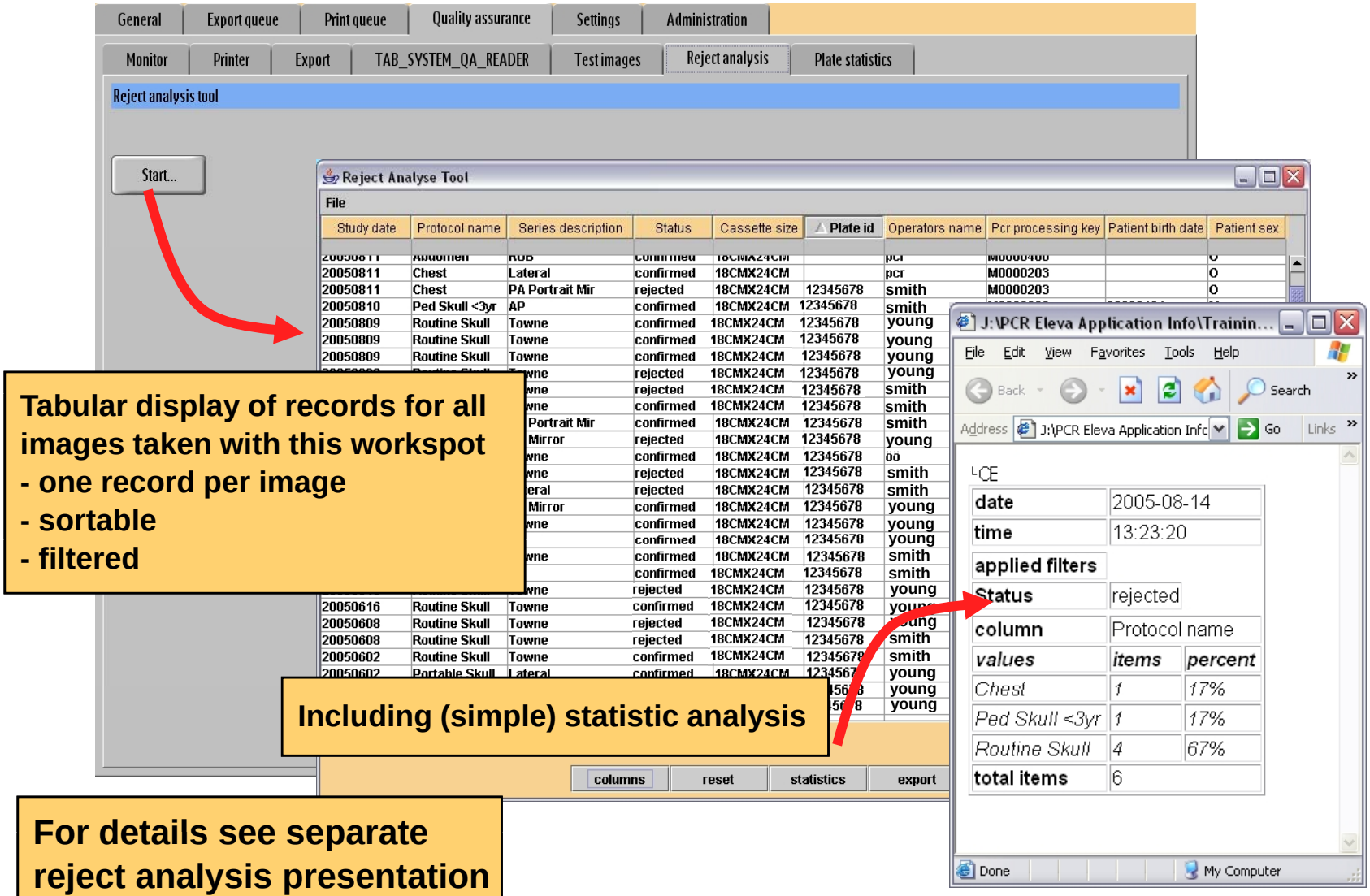
<u>Additional test images:</u>
Eleva scans all drives like CD, Diskette, Memory Stick, ... All <u>your</u> .dcm or .gip images found in root folder \additional_test_images will be put under „Other".

With the "Move image" tool you can move images then to another "real" exam, that you booked for this test patient.

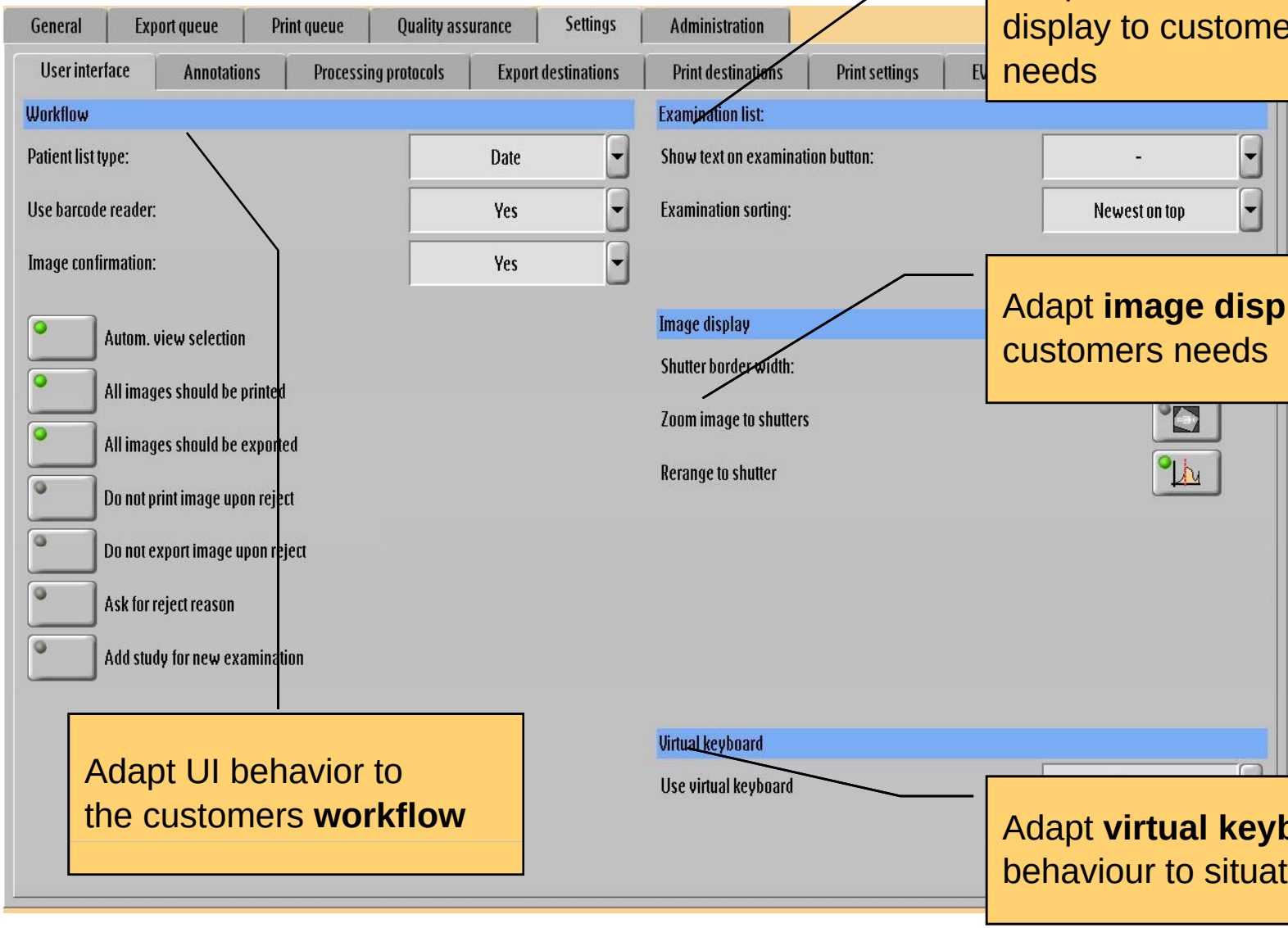


This is the ONLY way to get images INTO Eleva Workspot R1.x !

QA / Reject analysis



Settings / User interface



Adapt **information** display to customers needs

Adapt **image display** to customers needs

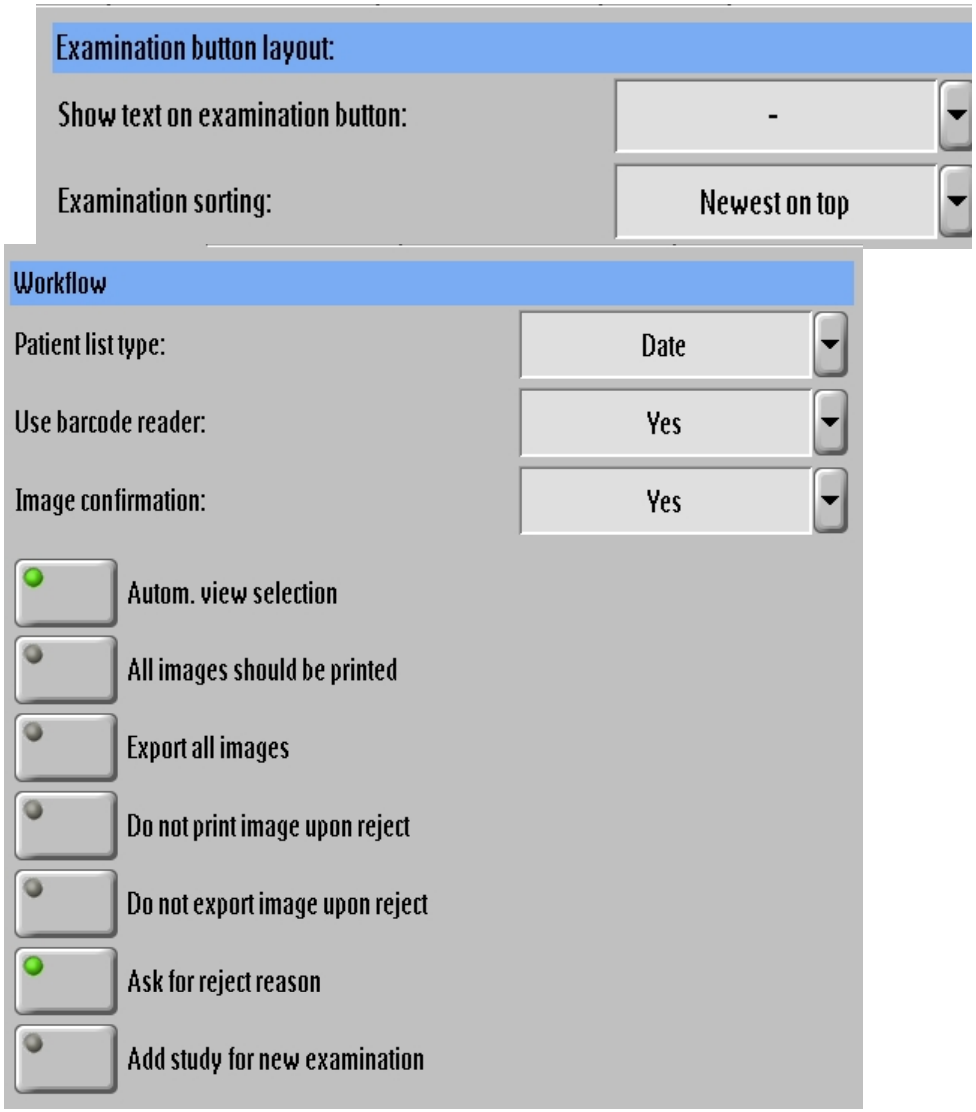
Adapt UI behavior to the customers **workflow**

Adapt **virtual keyboard** behaviour to situation

Workflow and Examination settings ... (PCR Eleva)

... are about:

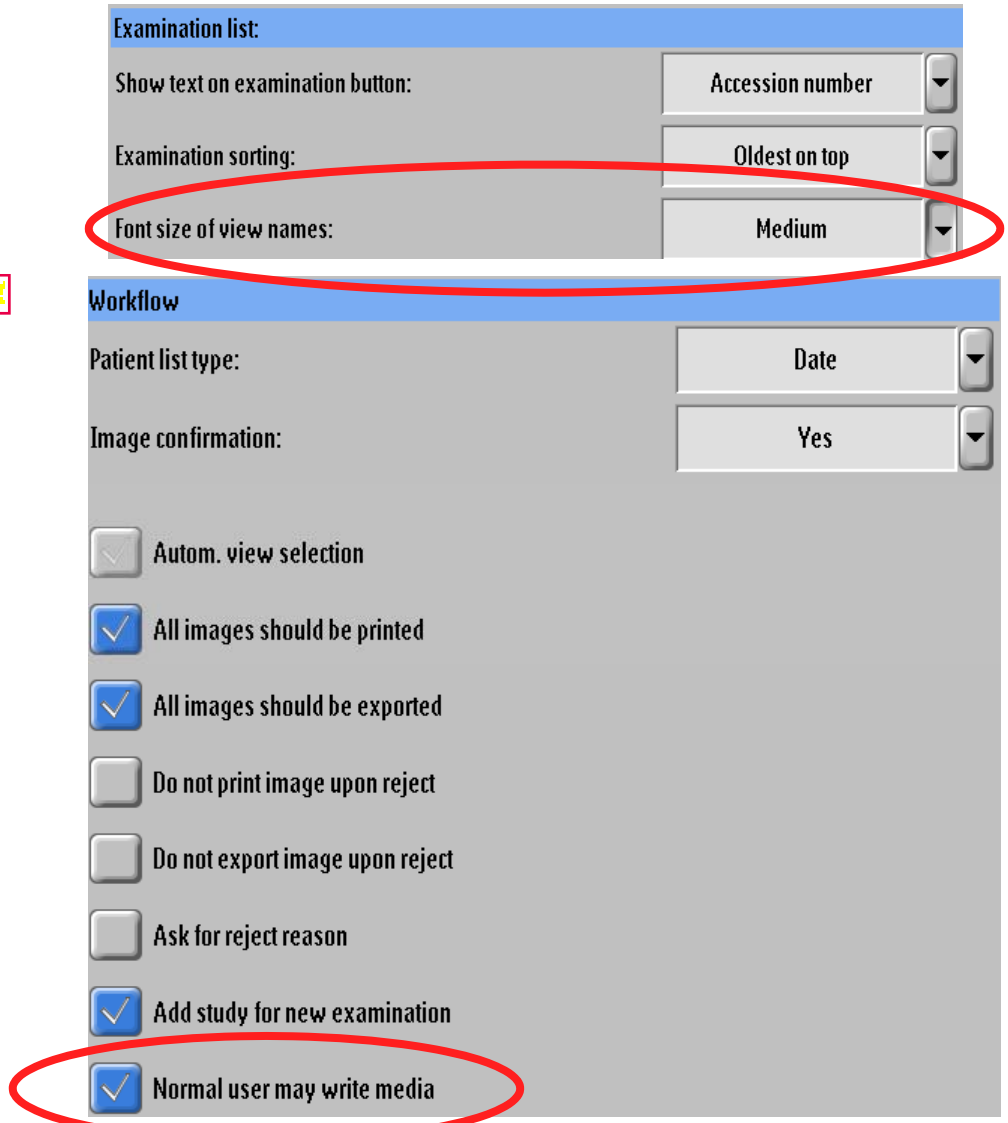
- Patient and Examination list display
- Barcode reader usage
- Auto confirmation
- Messaging on completing examinations
- What to do with rejected images ?
- Using the reject reason ?
- Study folder handling



Workflow and Examination settings ... Eleva Workspot 1.x

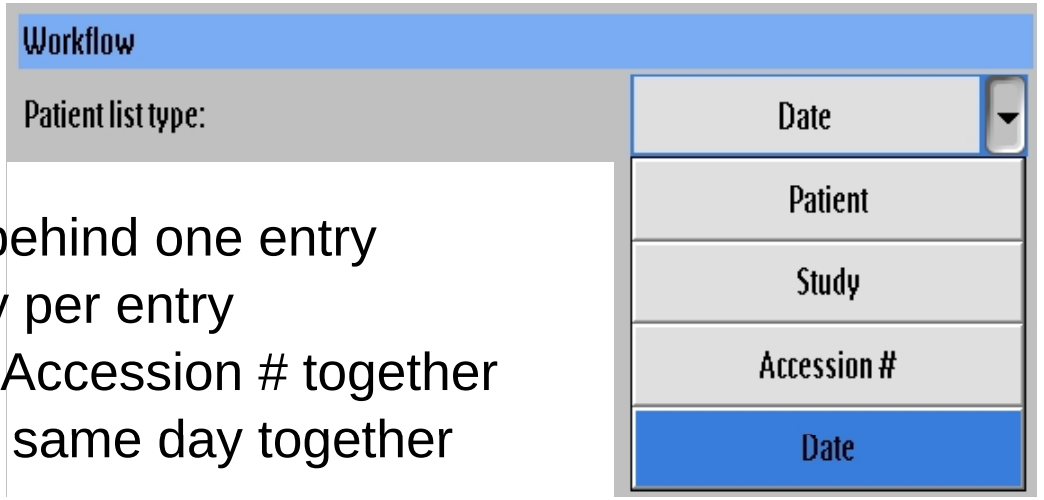
... are about:

- Patient and Examination list display (Font size of view names) NEW
- **No** Barcode reader usage NEW
- Auto confirmation
- Messaging on completing examinations
- What to do with rejected images ?
- Using the reject reason ?
- Study folder handling
- Media usage NEW



Workflow: Change patient list type

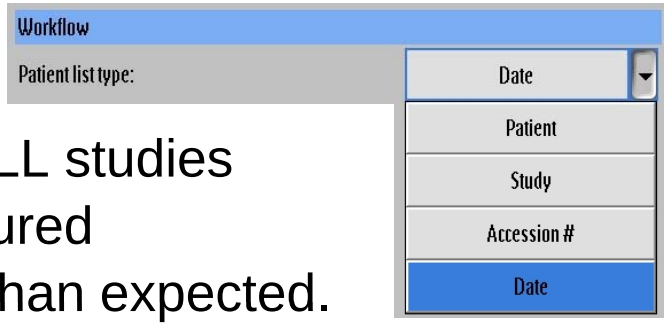
- **What exams are grouped with one patient list entry ?**
  Either one of
  - All studies of the patient behind one entry
  - Exactly one DICOM study per entry
  - All studies with the same Accession # together
  - All studies created on the same day together



- Different RIS, different ways of working ...
  > try out which setting fits best (*restart necessary*)

- *This is also known as "merging criteria" in other systems*

Good to know ... when patient list type is not "Patient"

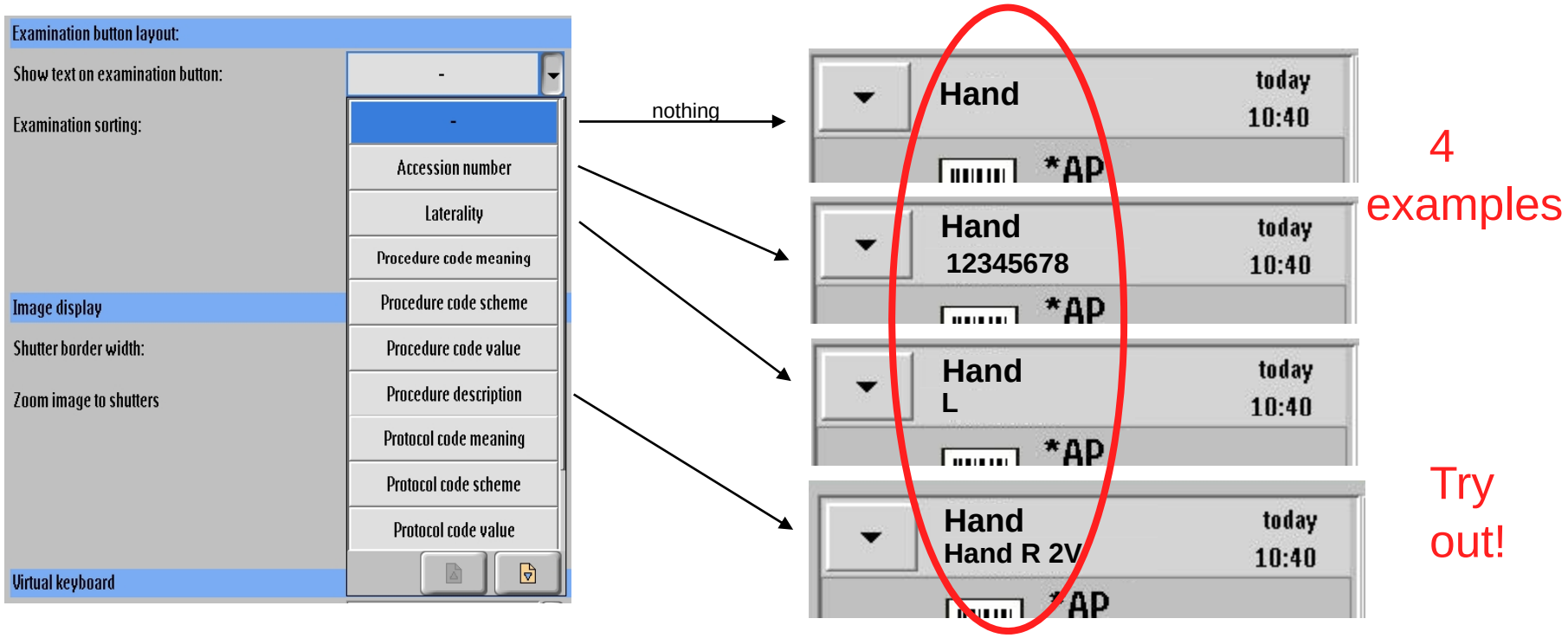


The following - maybe unexpected - behaviours should be considered:

- The patient edit dialog shows always ALL studies of the patient, even if the patient list is configured to show studies. You may see more studies than expected.
- You miss your change (add, change, delete) of studies/exams in the patient list after closing the patient edit dialog:
  - you select a patient (in fact a study group) in the patient list and
  - you add (or change) a new study with one or more exams
  - you close the patient edit and come back to patient list
  - here your selected patient does not show the new study (exams)
  - why ? where are they ?
  - the news have formed another patient list entry, which is either somewhere else in your current worklist, or not even part of it (because "in progress" worklist is active, but they are scheduled etc.)
  - why did that happen ?
  - because your new study has another date or acc# than the others!

Change examination button layout

- One **selected additional attribute** can be shown on Examination buttons
- Can be a
  - RIS attribute **(accession#, procedure code or procedure description, ...)**
  - or the exam's **Laterality** as defined in EVA *(details in EVA .ppt)*



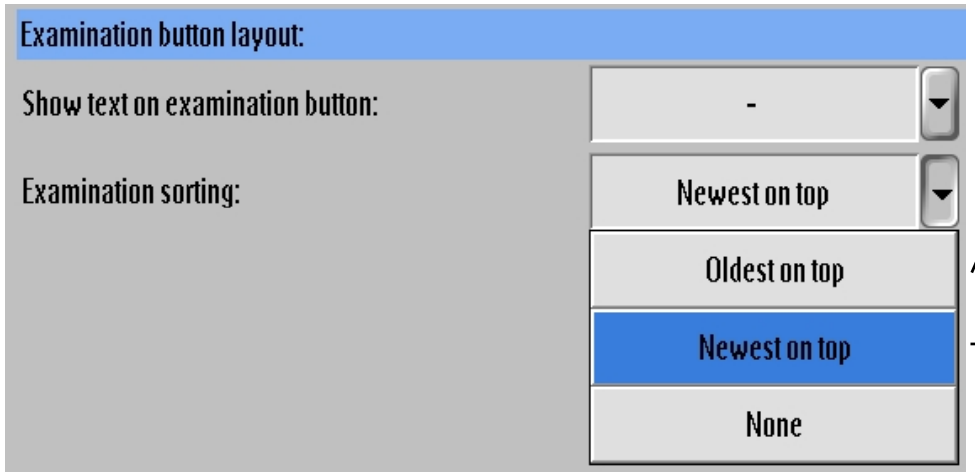
Change examination sorting

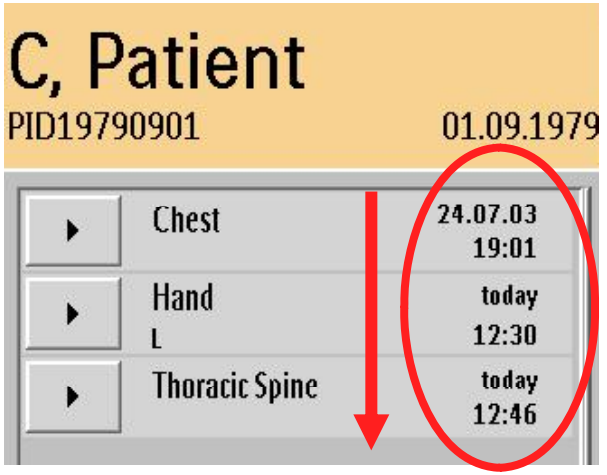
- Examination list can be sorted by date and time
  - oldest examinations on top
  - newest on top
  - not sorted, but in order exams where booked
- Note: "examination date + time" depends on the examination state

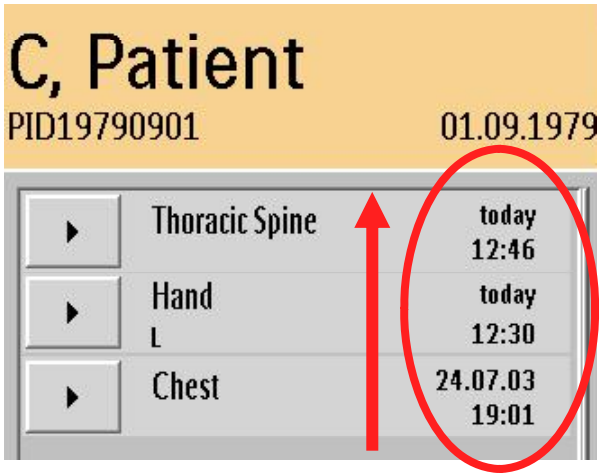
>> date and time it is scheduled for

>> date and time when it was started

>> date and time when it was completed







Auto proceed

- Automatic proceeding of the blue selection of views during the examination
  is always selected & cannot be turned off

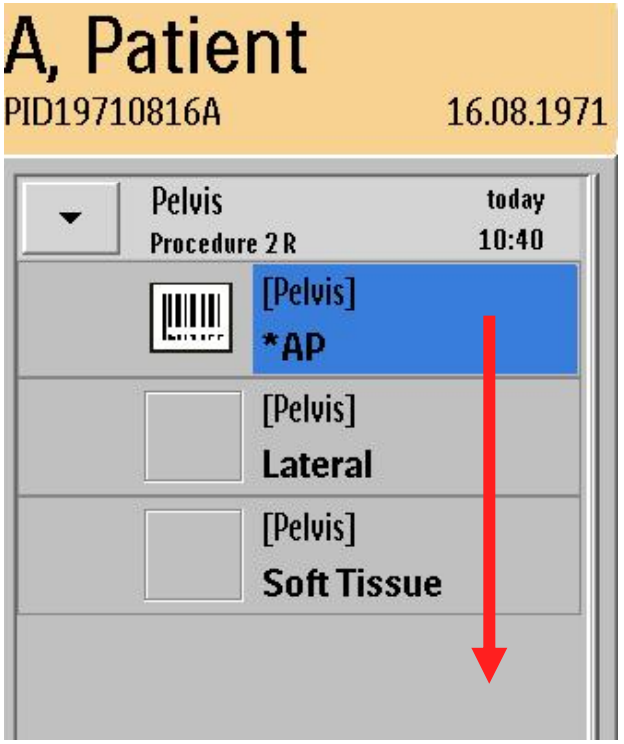


Image documentation & archiving control

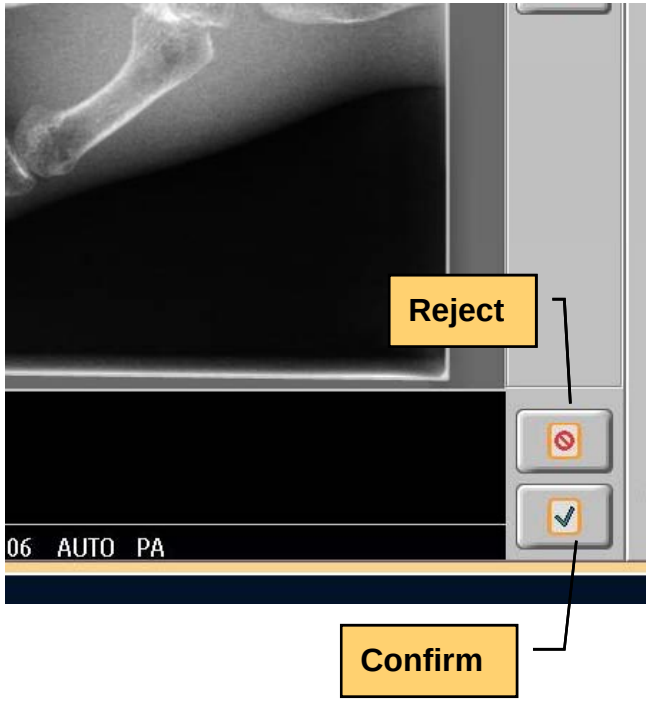
- One or two out of these two options must be checked (no way out)
- This influences, whether messages appear on completing the Examination

- If checked, then the system warns the user, if an image is

  - not printed already or
    at least marked for auto print on complete
  - not exported already or
    at least marked for auto export on complete

- But the system does not force the user to export or print
  This can be achieved via taking the *buttons off the tool bar ...*

What to do with rejected images ?



- Automatic print jobs will not be triggered
- Automatic export jobs will not be triggered

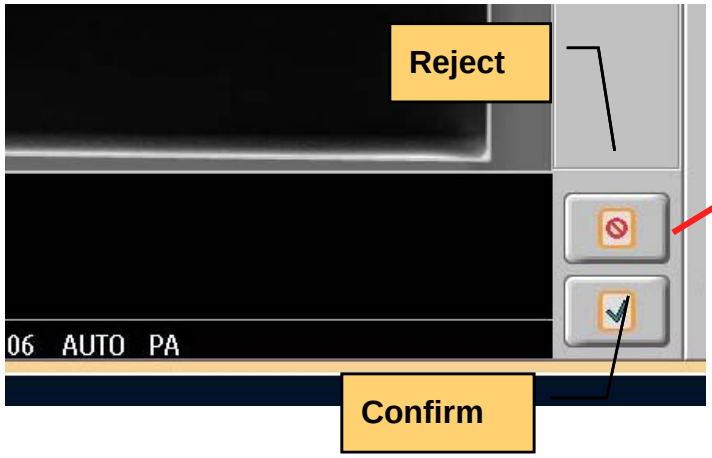
... if these options are checked.

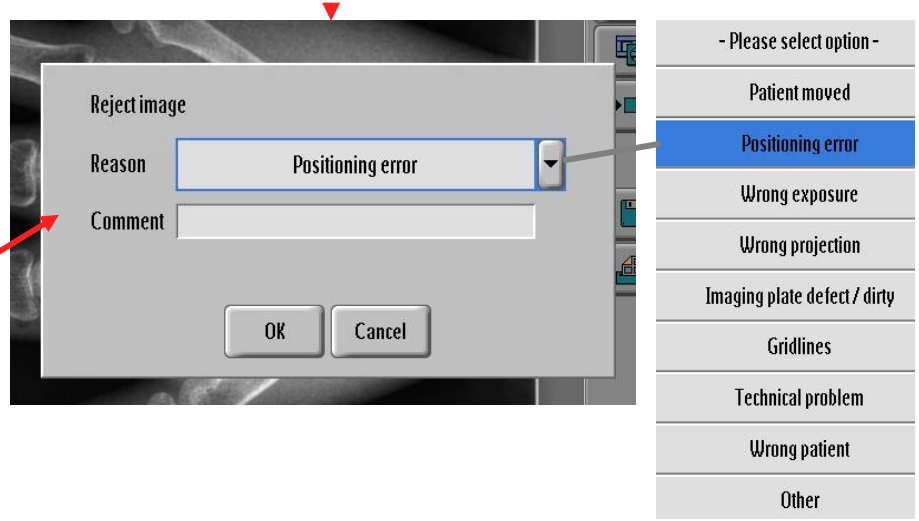
- Of course, you can still print and export manually
- The messages on examination completion about unexported / unprinted images reflect the settings of these two options here

Enter reason of image rejection (option)

- Each time a user presses
  - reject

  the system may ask for a reason and a comment, which is stored in the reject analysis and image header on export
- This is optional
- If not desired, do not check it, and system will not ask





Use image confirmation vs. auto confirm

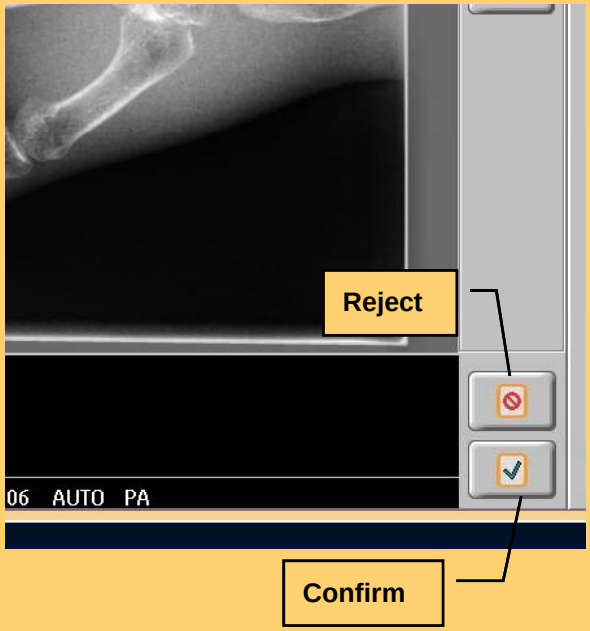
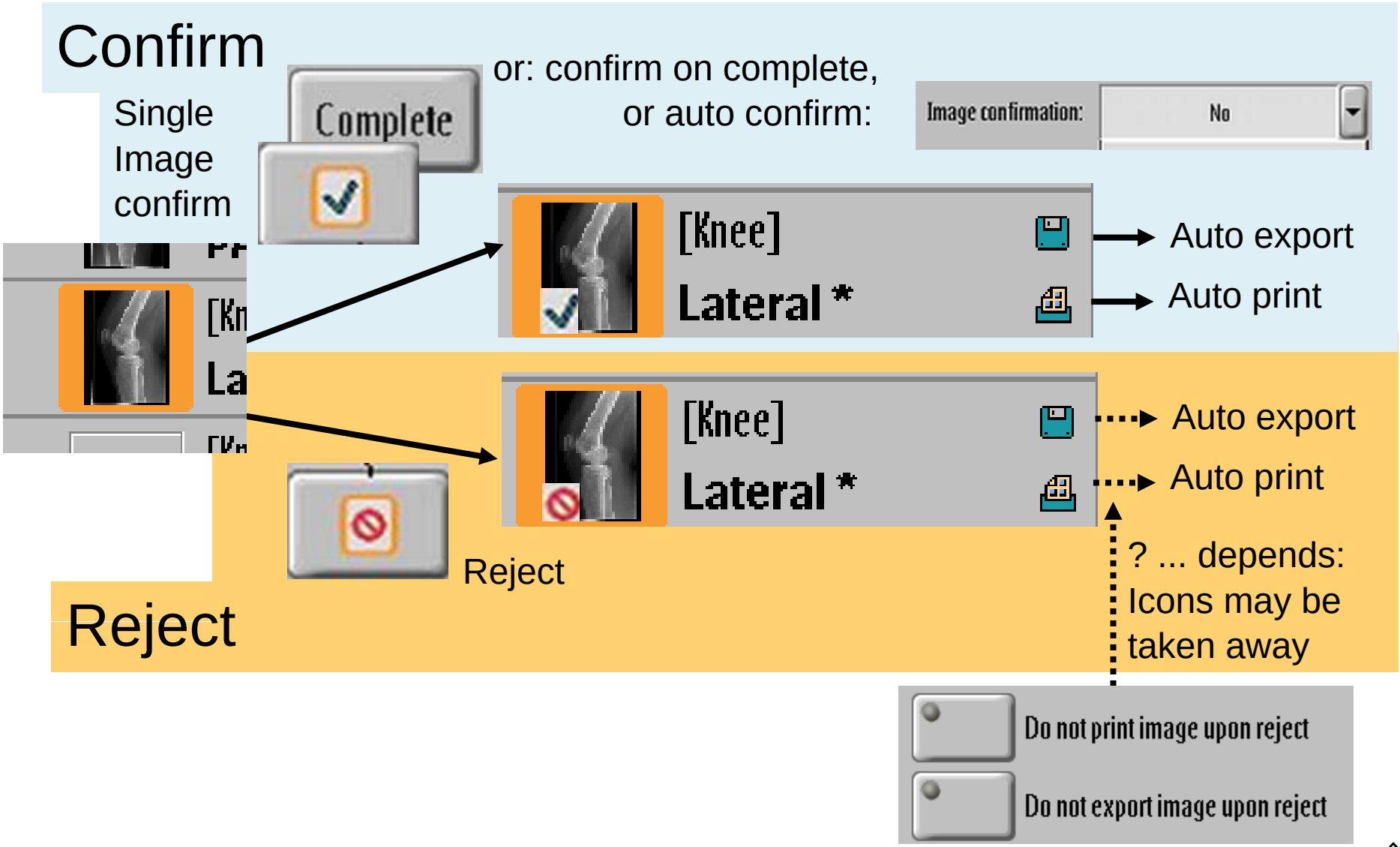


Image confirmation = Yes:
- User can confirm and reject image
- Implicit confirmation of the undecided images happens with "Complete"
- Auto export and print after confirmation

Image confirmation = No (= auto confirm):
- User cannot confirm and reject image *(decision buttons always disabled)*
- Automatic confirmation after readout
- Auto export and print follow immediately

Confirm, reject, auto export and print altogether



New Study per new Examination ?

- Affects only manually booked additional examinations
- **If unchecked**, you may book examinations into a selected study folder
  - Accession number and Study Instance UID etc. re-used
  - New examination refers to the RIS SPS data of the original study
  - Still you can create a new study by yourself
    - empty accession number
    - new Study Instance UID
    - no referring to the SPS RIS data
- **If checked**, every new examination booking creates a new study
  - Empty accession number
  - New Study Instance UID
  - No referring to the SPS RIS data
  - **Typically this creates an UFO in PACS in RIS environments This is intended!**

Study Description content

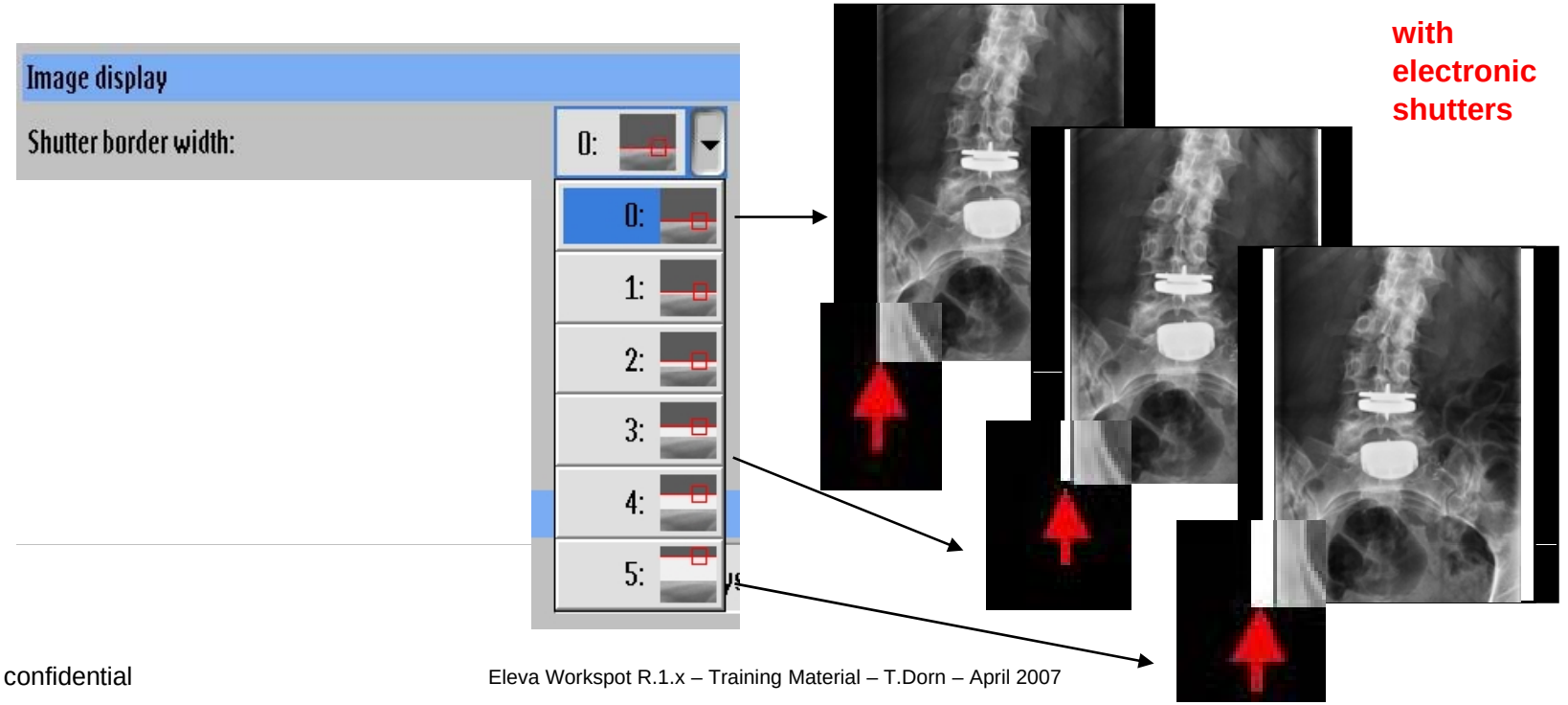
- Eleva Workspot 1.xcan fill Study Description (DICOM attribute 0008,1030) with
  - **Examination name of 1st image exported for this study, or**
    (if customer want several exams per RIS code, and decide in the situation, which one is actually performed)
  - **Requested Procedure Description from RIS, or**
    ("cross mapping", study folder in PACS has RIS procedure name)
  - **Leave it empty**
    (for customers, who split Studies among Modalities)
- *Set in Field Service on Worklist Management (WLM) configuration page!*

Change shutter border width

How do you know this image was collimated properly ?
After electronic shutters may have cut off /
blacken the unexposed area ?

>> Eleva can draw the electronic shutters in a way
that an unxeposed frame around the image is visible
>> Width of this border can be adjusted from 0 to 5

without electronic shutters



with electronic shutters

Rerange to Shutter

What is "Reranging" ?

During the automatic image processing, the UNIQUE "ranger" finds the anatomy of interest in the image (pixel histogram).

Thereby the ranger looks only in the area that the autoshutter algorithm has initially identified as exposed image area.*(This is the same area that a new calculation of the polygonal autoshutter in the shutter tool would show)*.

With the Rerange button switched on, any user applied changes to the electronic shutters are transmitted to the ranger algorithm.
The ranger is then recalculating with every shutter move, adapting to the new user defined shutter shape.

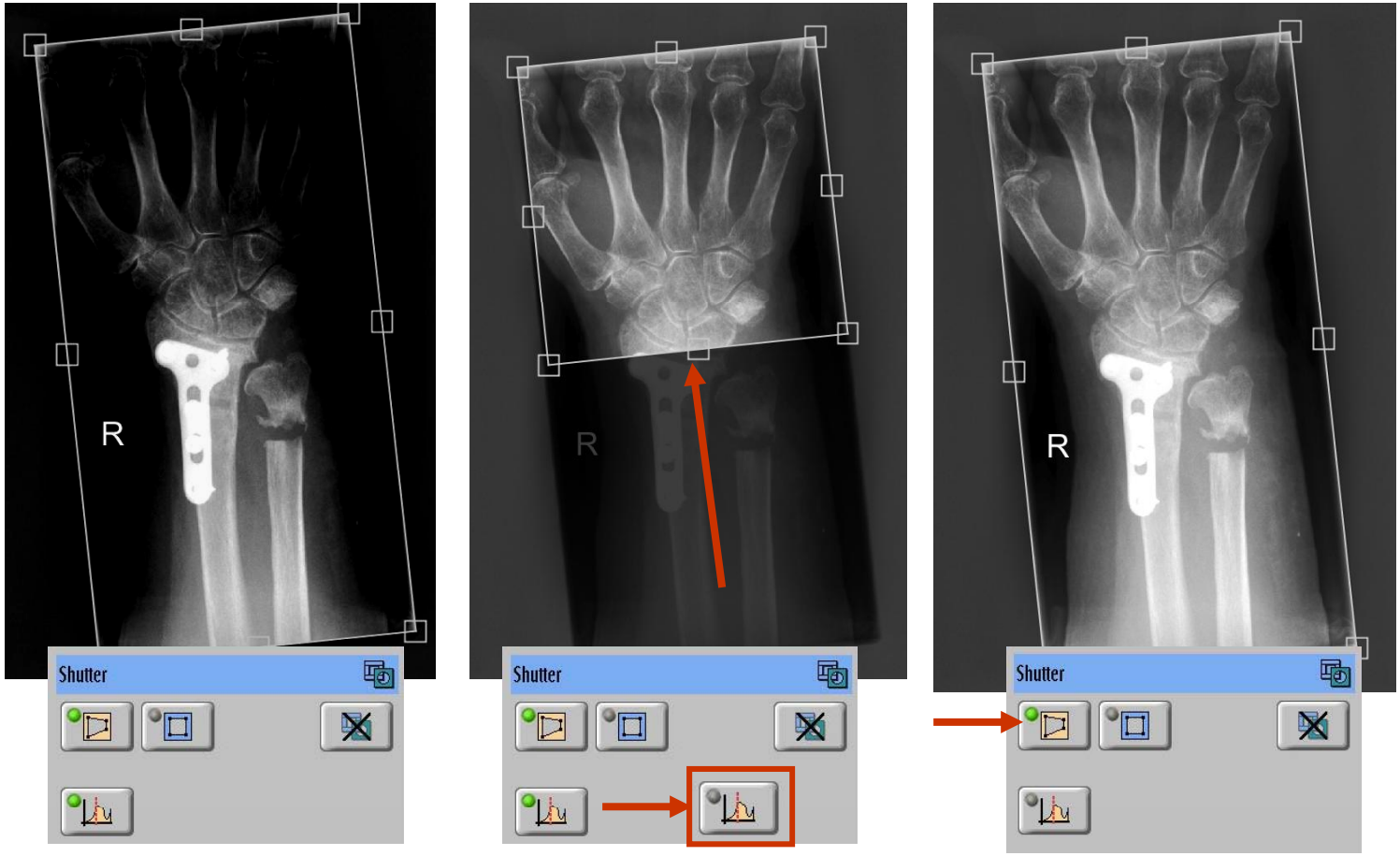
This can be observed by opening the Ranger tool in the last applied shutter changes are also taken here as ranger shutters.

Rerange to Shutter default

Setting of this button determines the default setting on/off for every new image in the shutter tool.

Example:

- Rerange leaving out the artefact through the implant
- 3 Steps

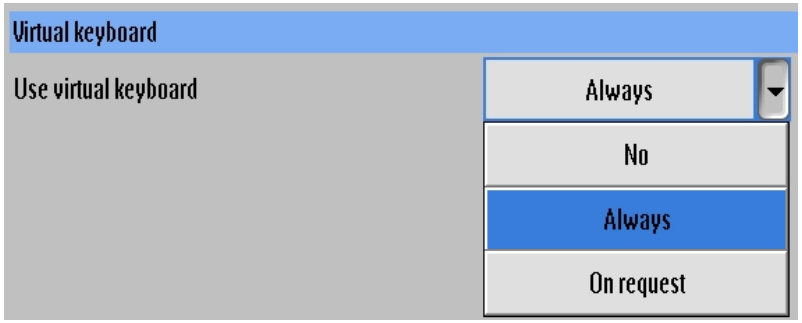


1.shutter without implant **2. rerange off** **3. autoshutter again**

Change use of virtual keyboard

Three options for usage of virtual keyboard

No = keyboard appears never
Always = keyboard appears always when a text field gets focus
Request = when a text field gets focus, a little keyboard icon appears, press it to open



close

3 positions to choose !

User defined annotations

- Add Annotation:
  1. enter free text
  2. choose size
  3. press Save
- Changing is not possible ...
  > delete
  > re-enter

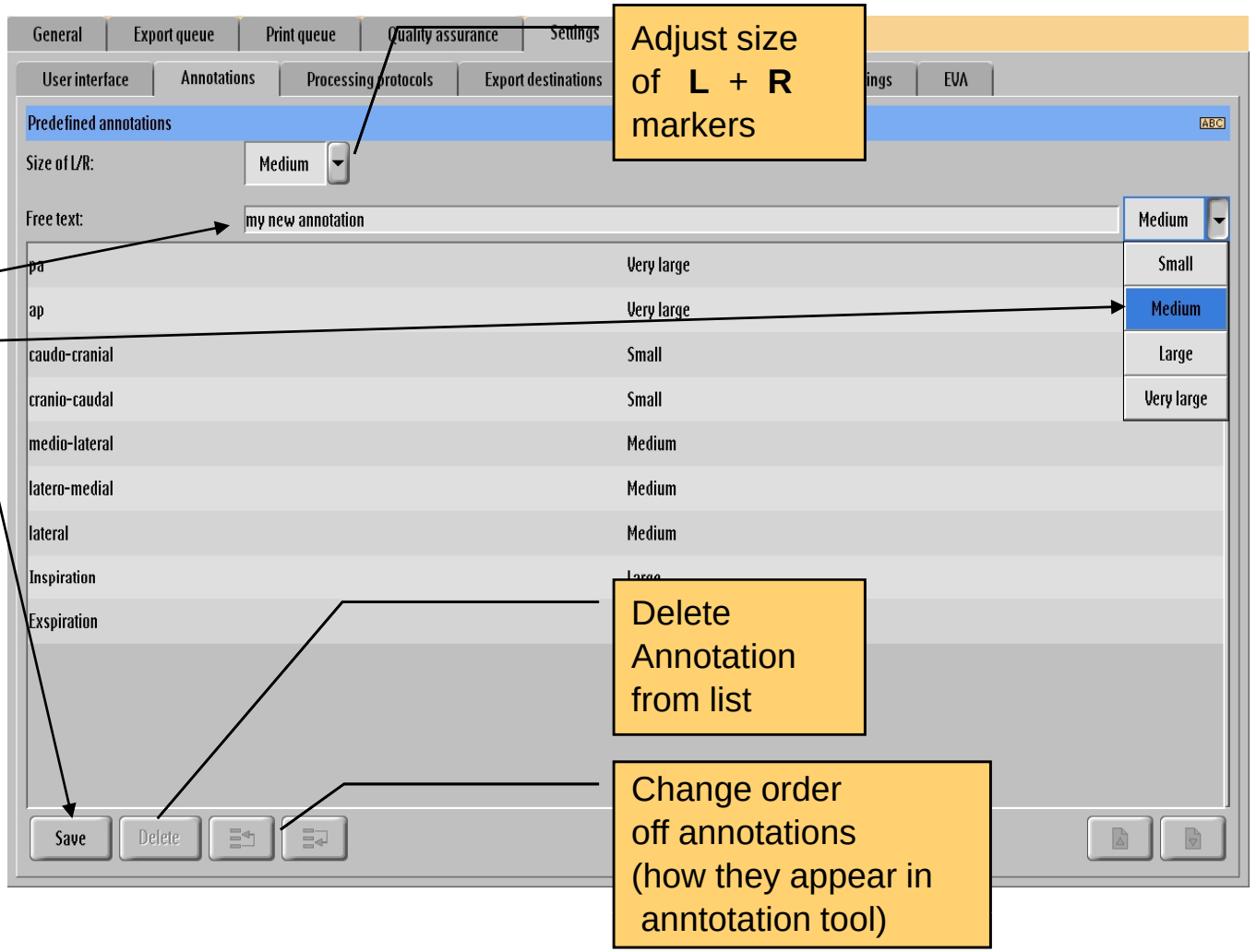
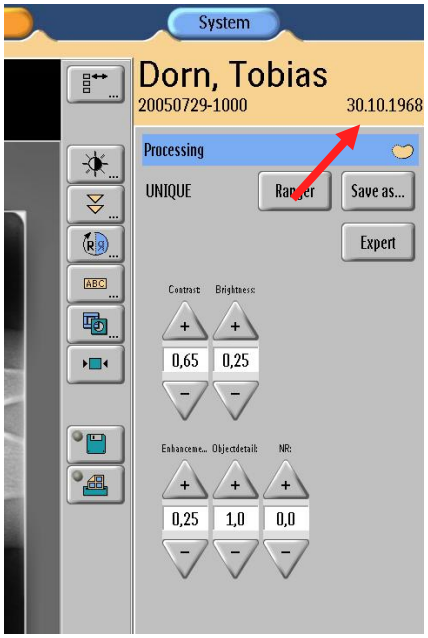


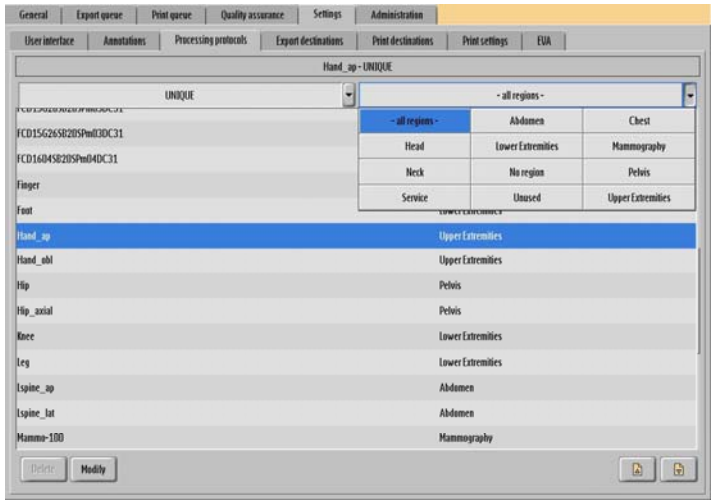
Image processing protocols

Change & save
in application

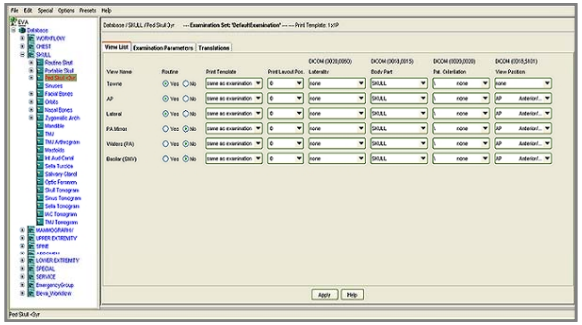
Organize
in "System"

Connect protocols
to views in Eva tool



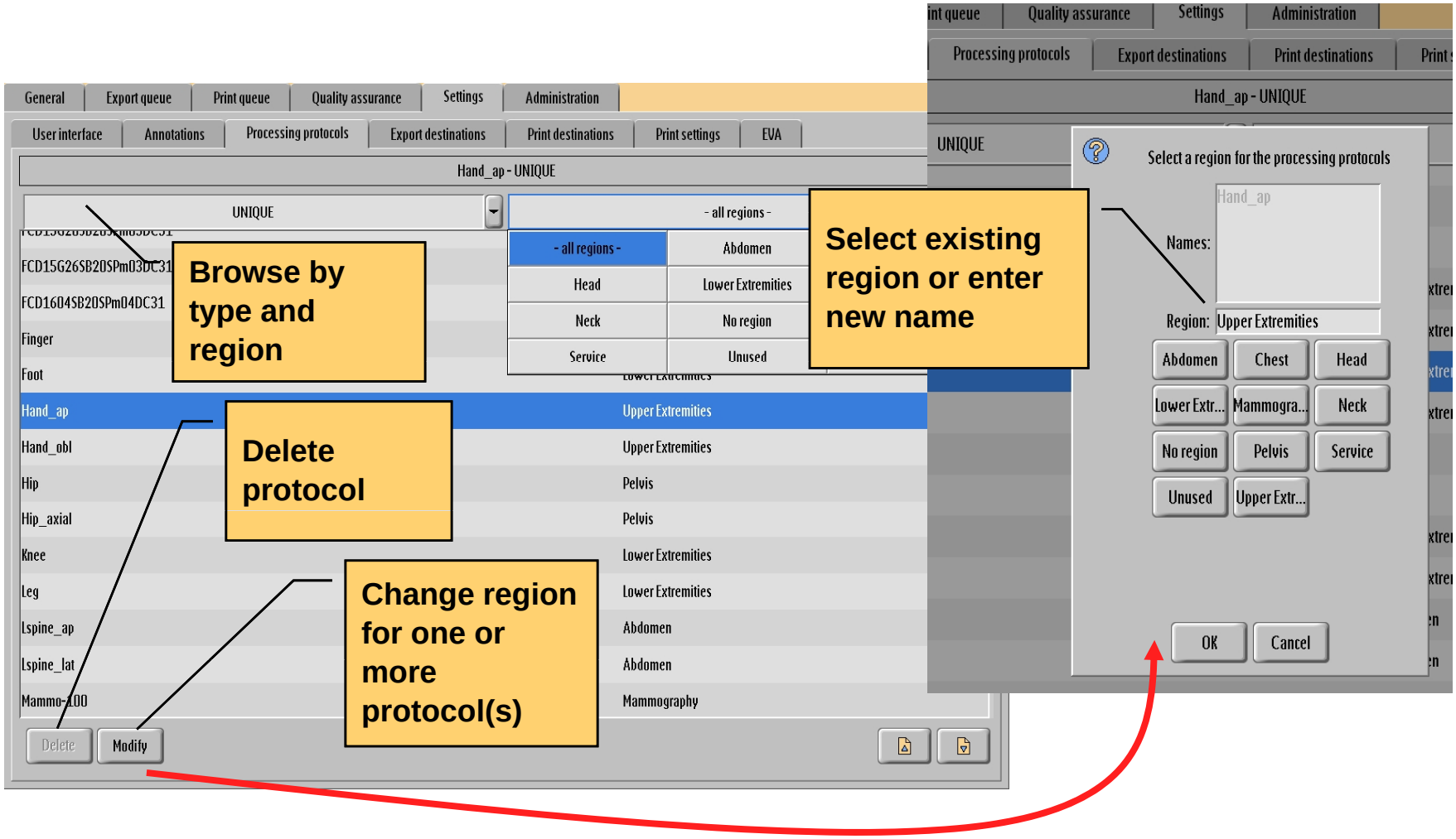


EVA



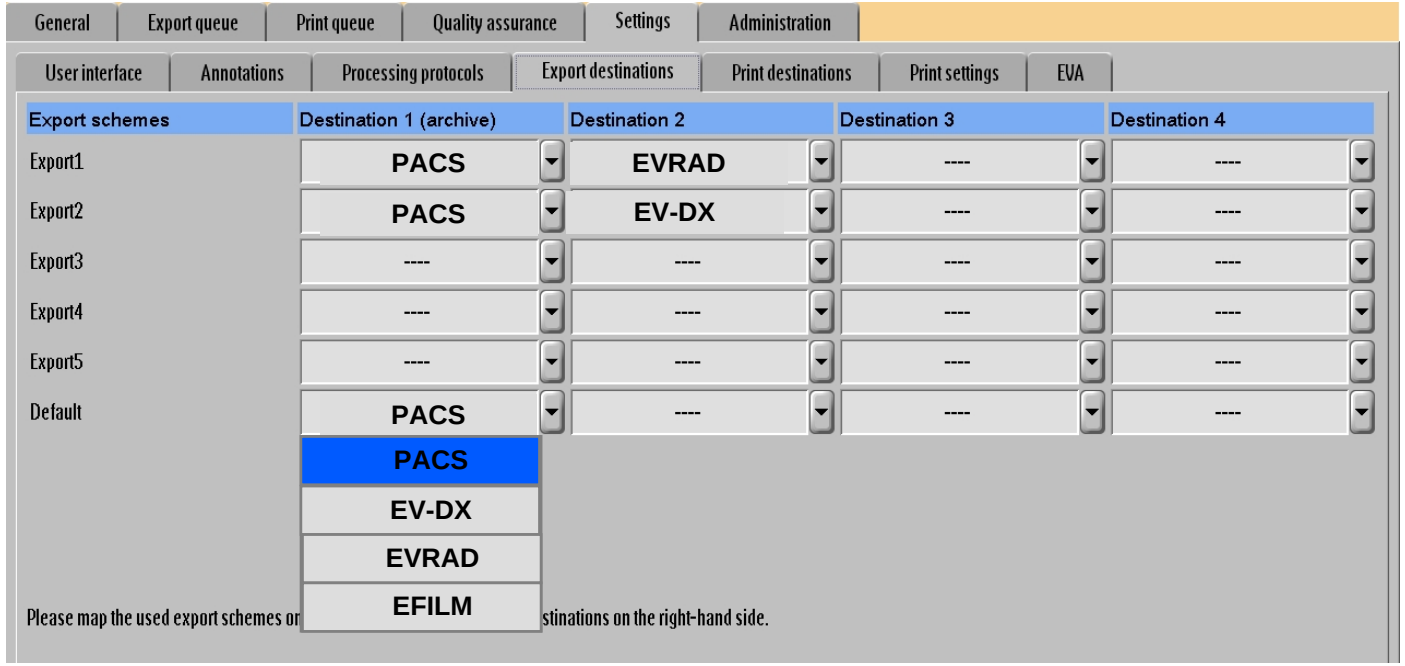
Details about handling of Image processing protocols: **See Image Processing presentation.**

What you can do in "System" with protocols ...



Export destinations for automatic export

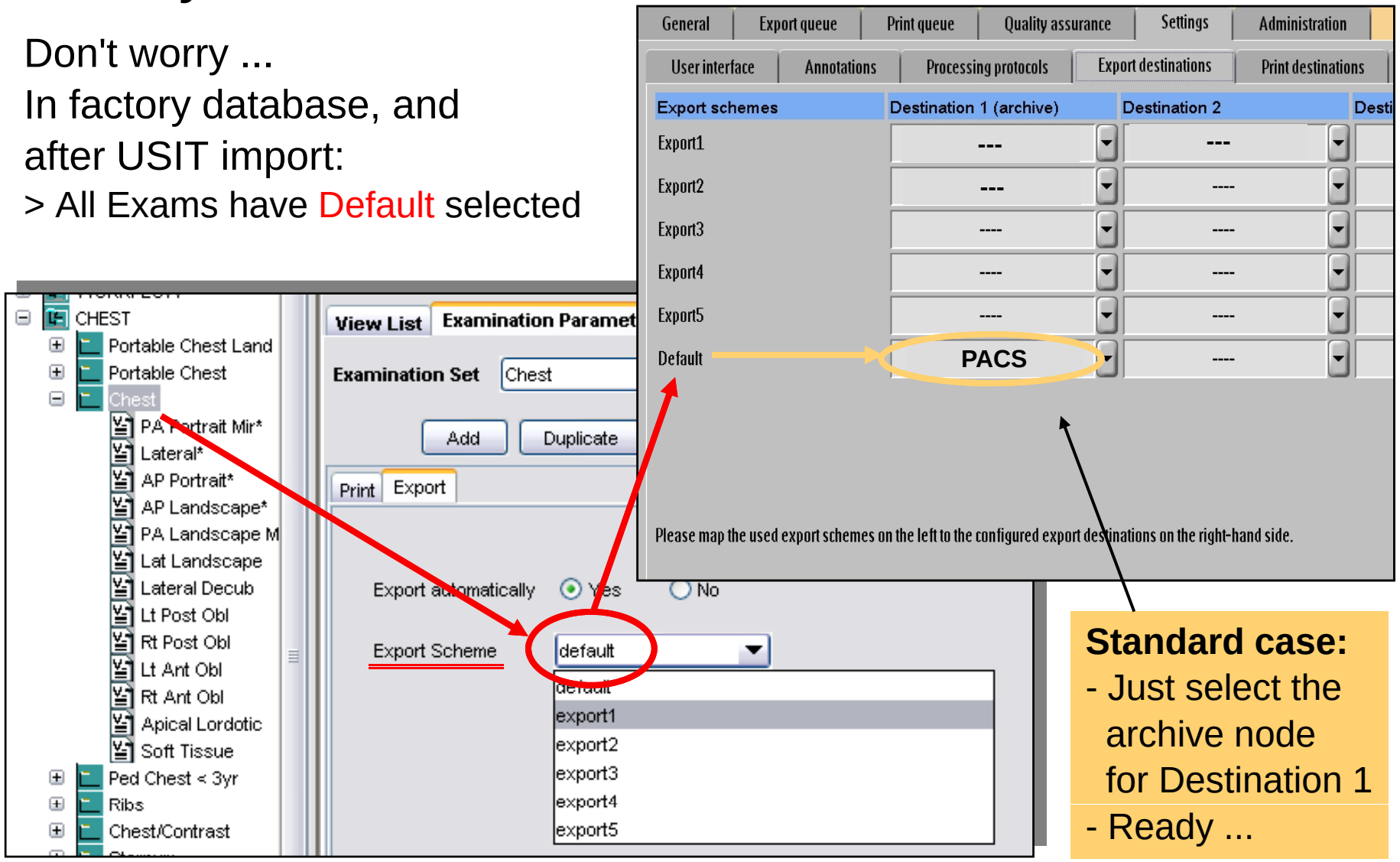
- Eleva Workspot 1.x exports images according to *export schemes* (*default, export1, export2, export3, export4, export5*)
- Export schemes are selected in EVA tool - one per Examination
- The advanced user can define what destinations are connected to a *scheme*
  > choose from all service configured DICOM export nodes
- Up to 4 destinations per export scheme can be selected
  > images will be sent to selected destinations one after the other
- Destination 1 is meant to be the archive (*no extra control mechanism behind (yet)*)



continued on next slide ...

Factory Default

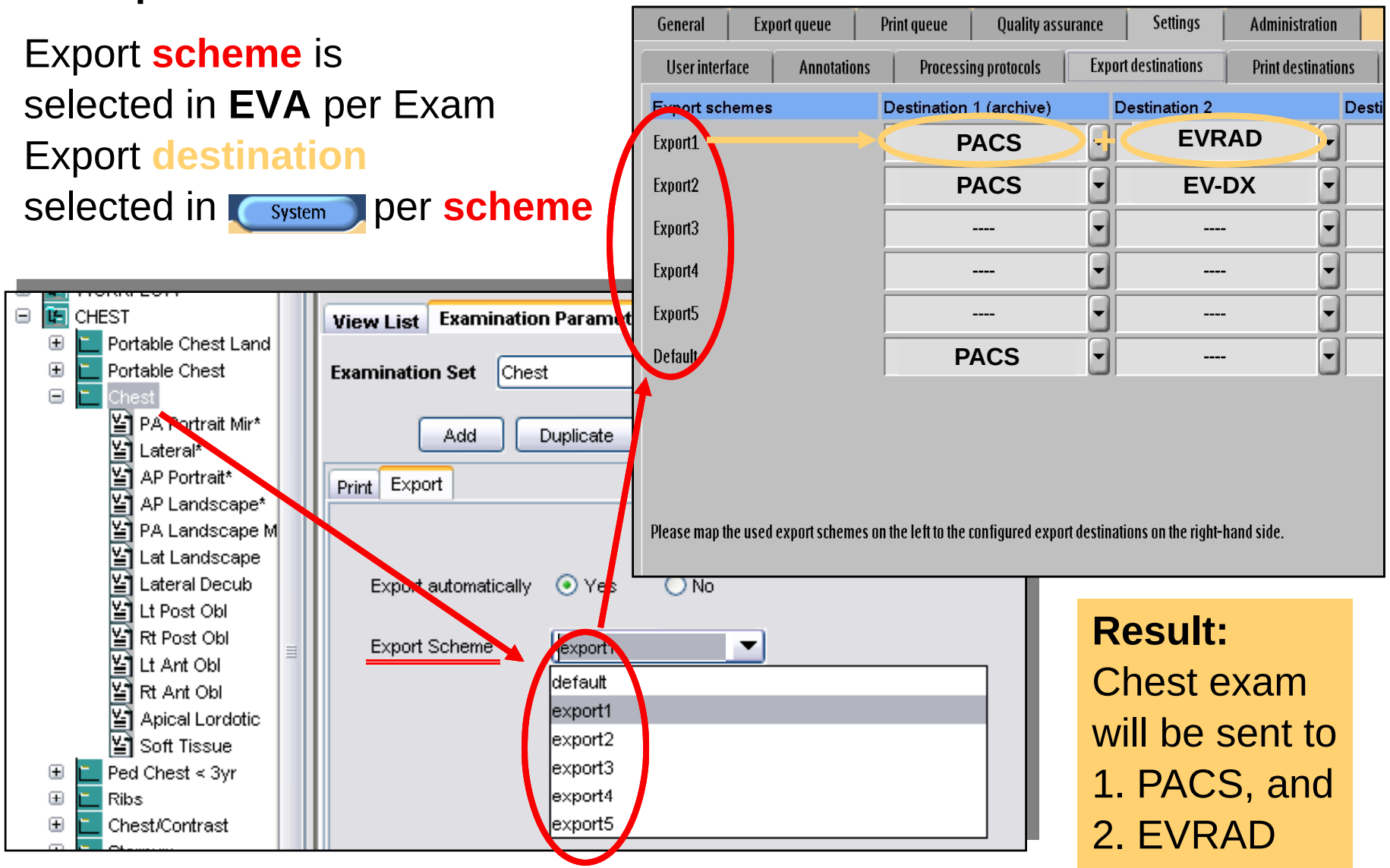
- Don't worry ...
- In factory database, and after USIT import:
  > All Exams have Default selected



Standard case:
- Just select the archive node for Destination 1
- Ready ...

Multiple destinations ...

- Export **scheme** is selected in **EVA** per Exam
- Export **destination** selected in System per **scheme**



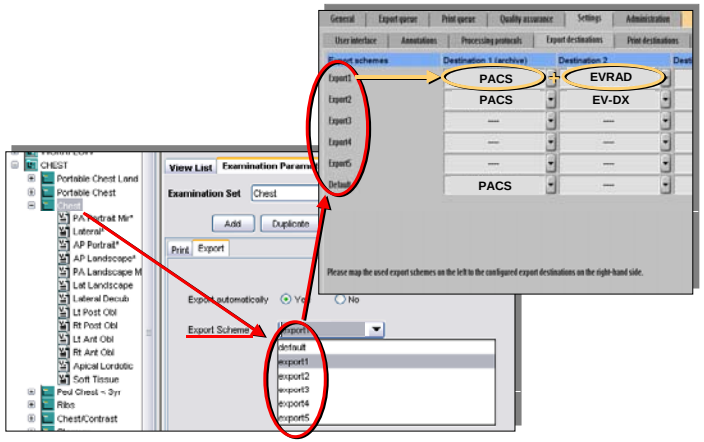
Result:
Chest exam will be sent to
1. PACS, and
2. EVRAD

Why these Export Schemes ?

- You can route images to several destinations, dependent on examination type (*exam set*).

- You can change routing
  - add workstation
  - change temporarily, if one destination is down

  without editing the EVA database !
- Advanced user can do this without EVA training

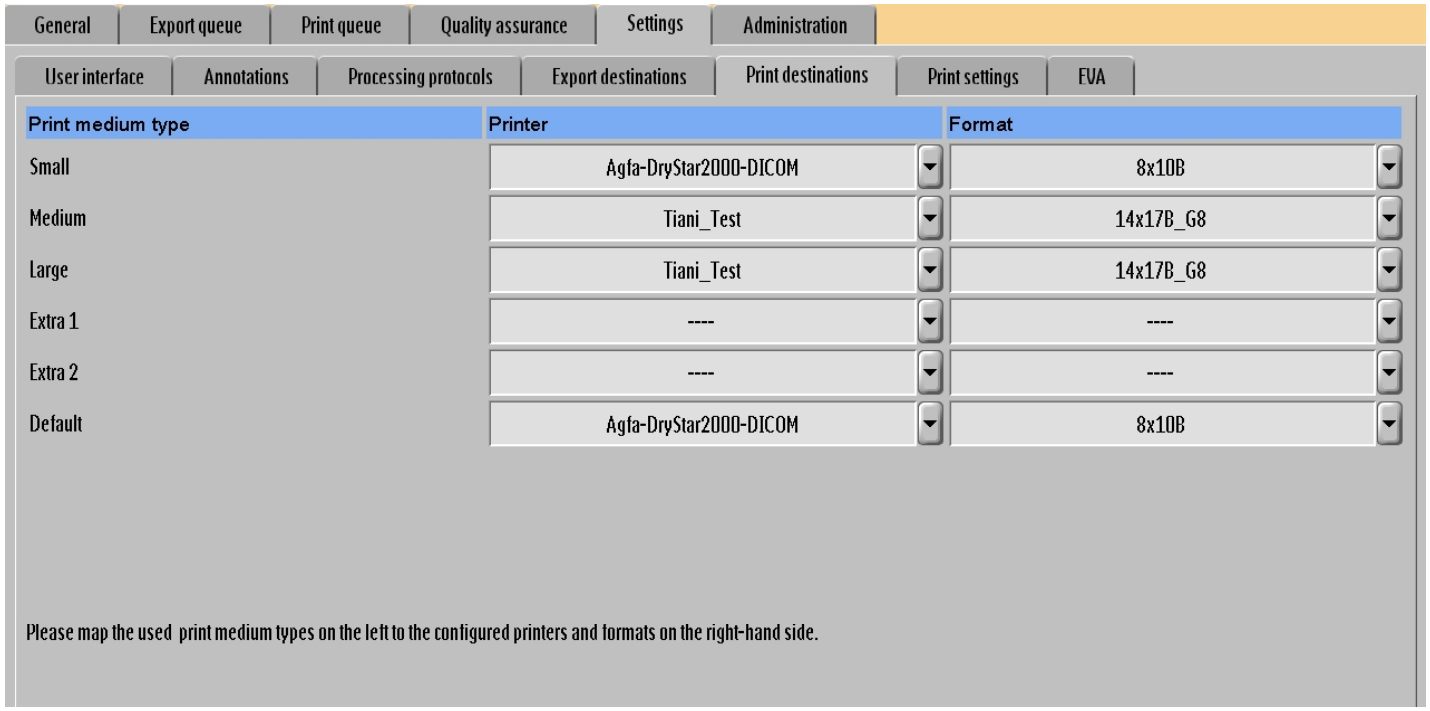


- The configuration in EVA database is not fixed to the DICOM node names!

  >> transfer of databases from one customer to the next

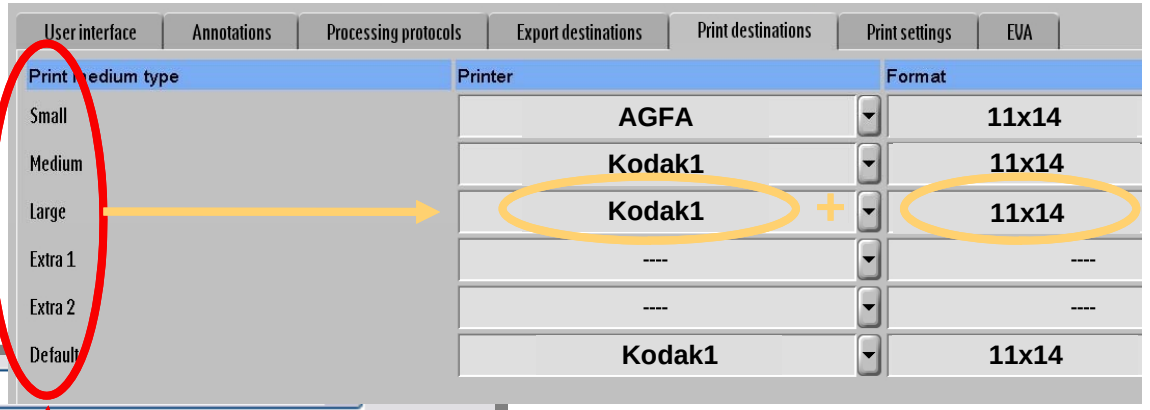
Print destinations for automatic printing

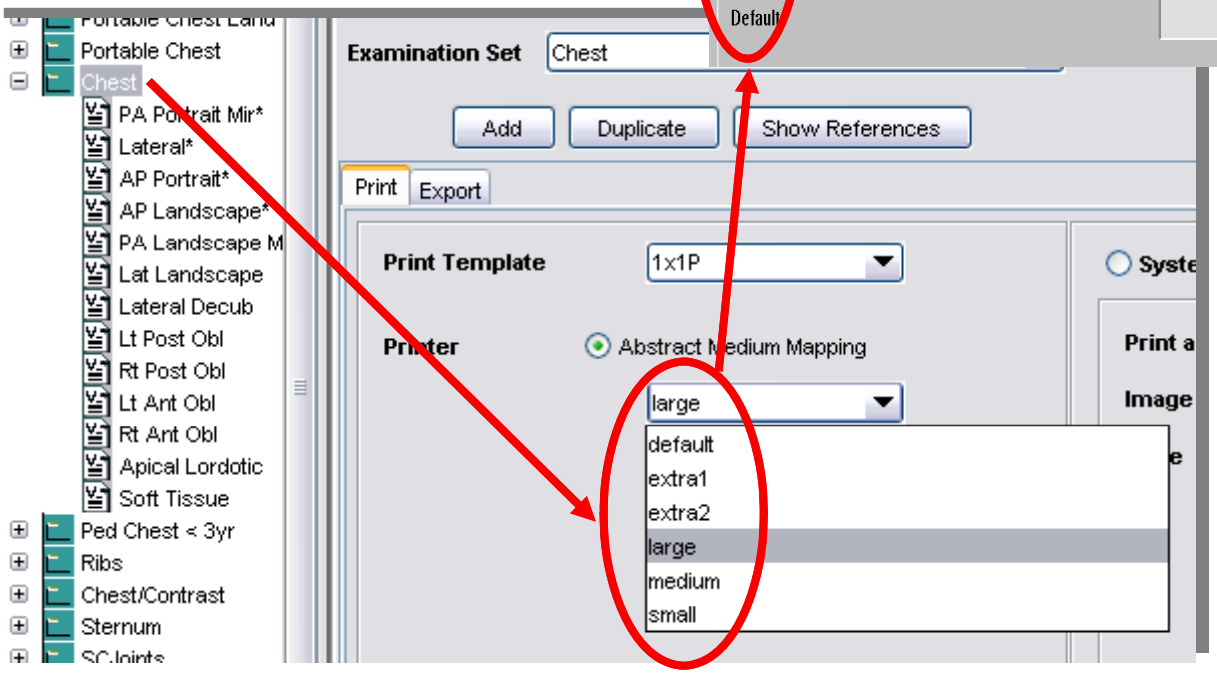
- Eleva Workspot 1.x selects printer and medium according to *print medium types* (*default, small, medium, large, extra1 and extra2*)
- The advanced user can define what available printer + medium is connected to a *print medium type*:
  > choose from all service configured DICOM printers
  > choose from all service configured media for the selected printer



Print destinations for automatic printing

- Print medium **type** is selected in **EVA** per Exam
- Final **printer and medium** selected in System per **type**



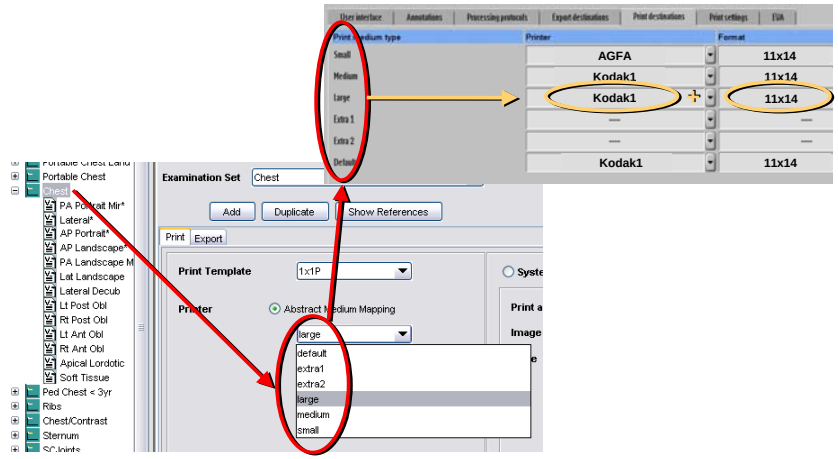


Result:
Chest exam will be printed on
- Kodak1
- 11x14 film

Why these Print Medium Types ?

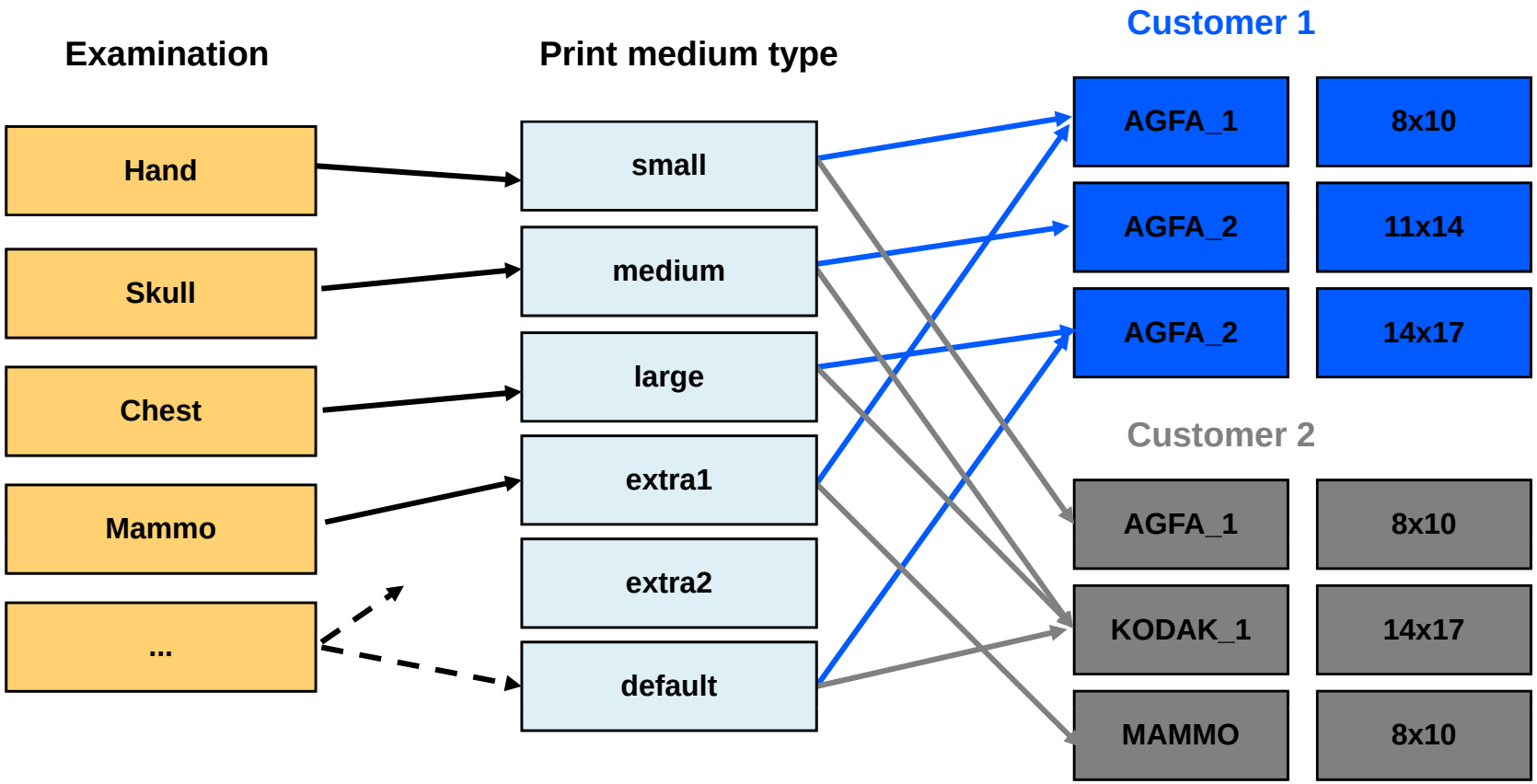
- You can change printing rules when
  - add a new printer
  - replace a printer
  - change temporarily,
    if one printer or slot is down

  without editing the EVA database !
- Advanced user can do this without EVA training

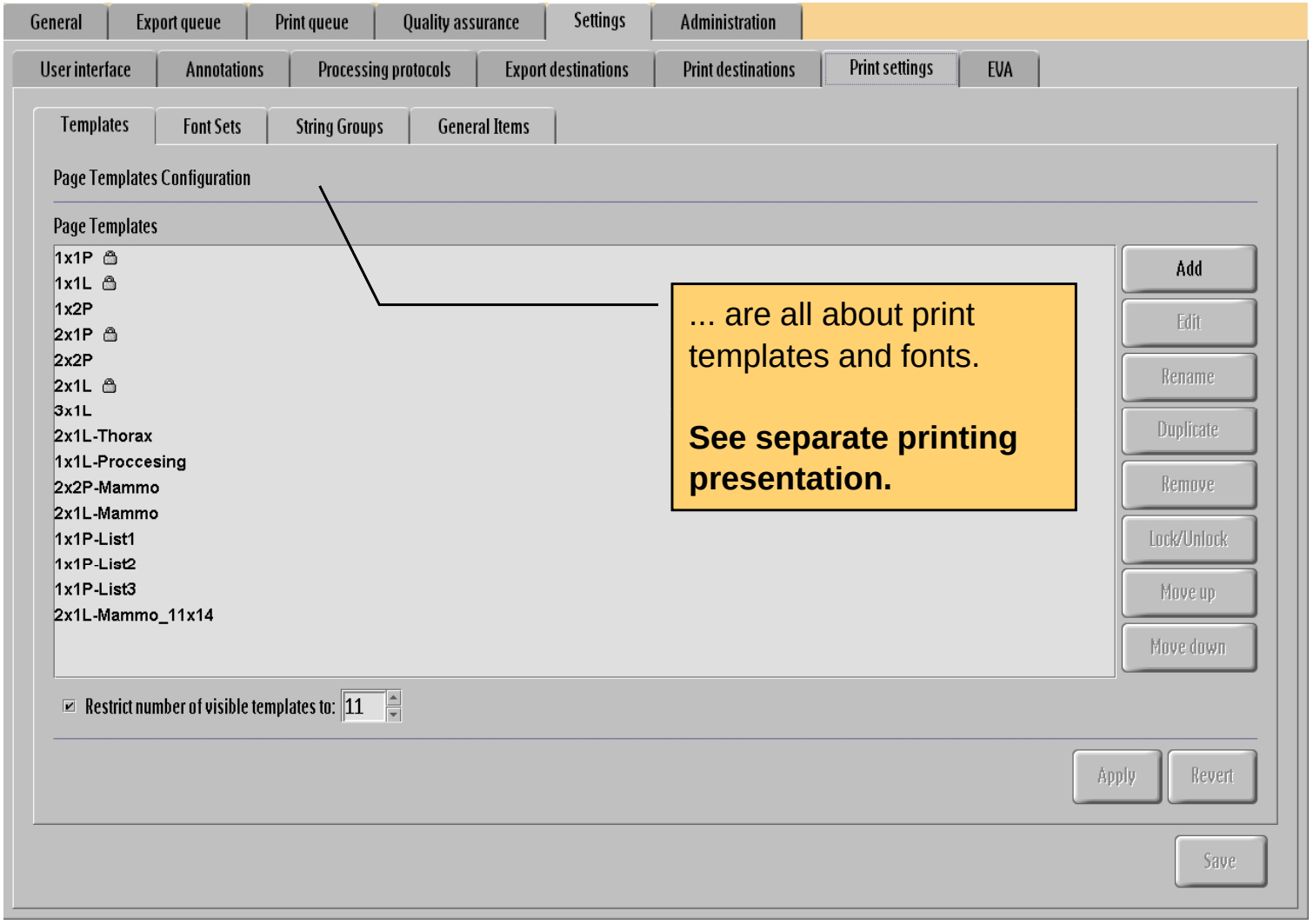


- The configuration in EVA database is not fixed to the printer names and available media !
  >> transfer of EVA databases from one customer to the next much easier

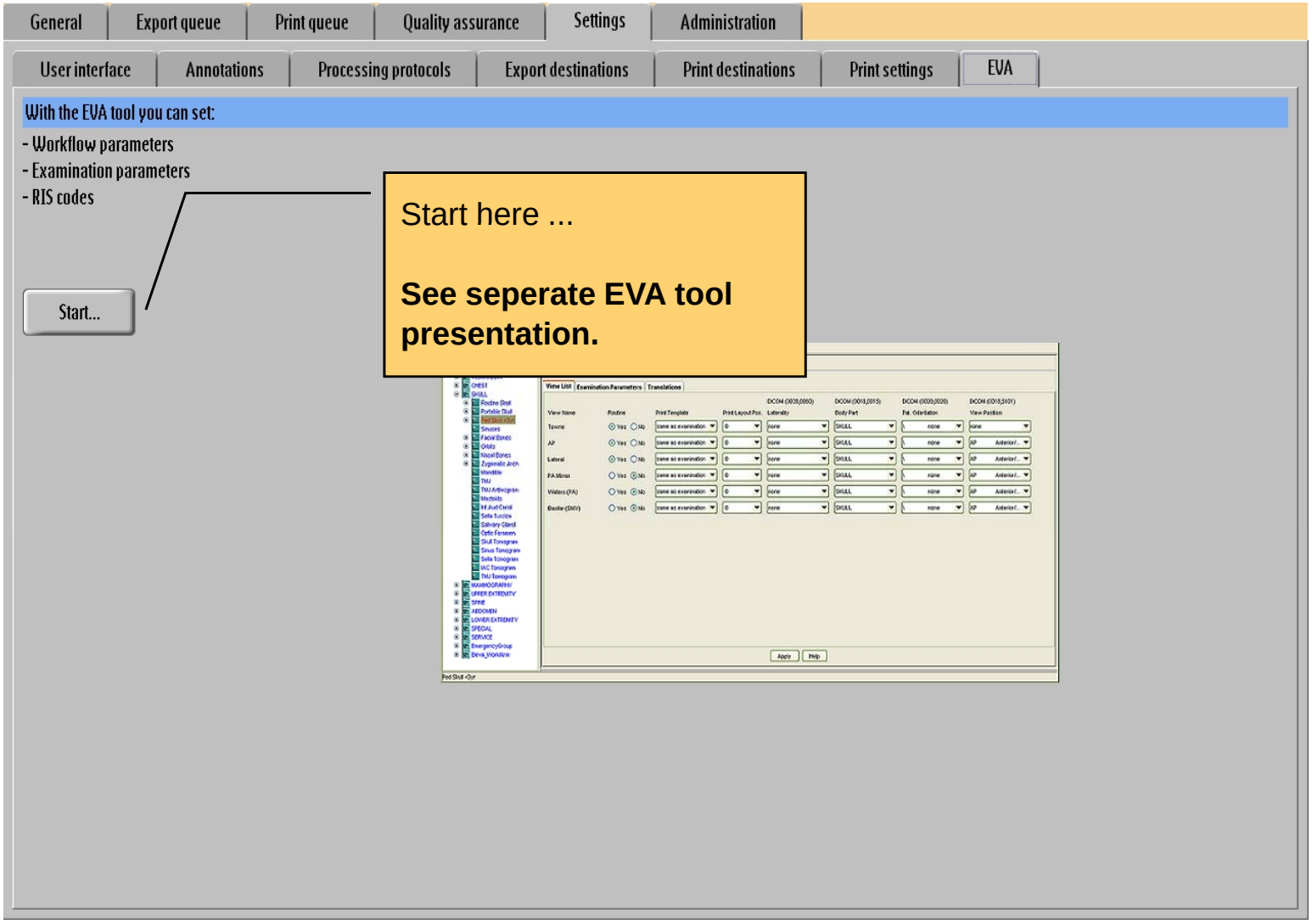
Different customers, same EVA print config ?



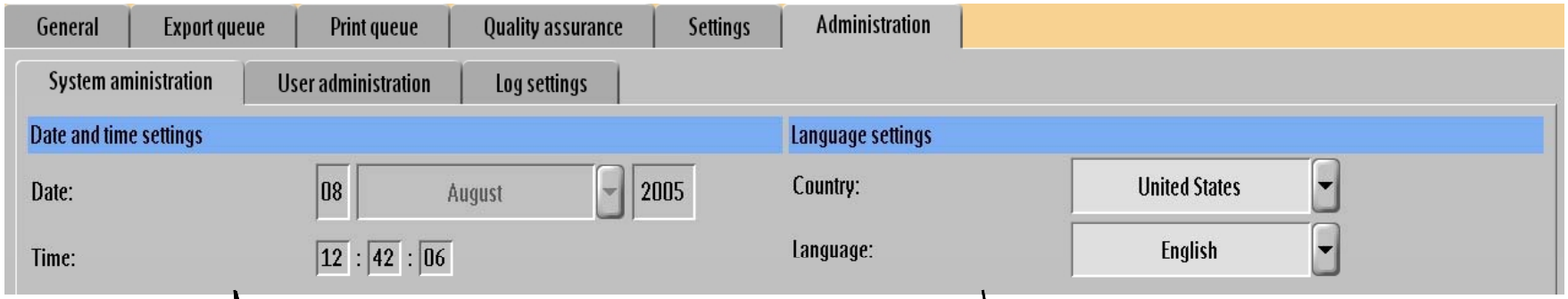
Print settings



EVA tool


General
Export queue
Print queue
Quality assurance
Settings
Administration
User interface
Annotations
Processing protocols
Export destinations
Print destinations
Print settings
EVA
With the EVA tool you can set:
- Workflow parameters
- Examination parameters
- RIS codes
Start...
Start here ...
See seperate EVA tool presentation.

Administration / System: Date and Language



Normal user can **see** Date and Time

Advanced user can **set** Date and Time

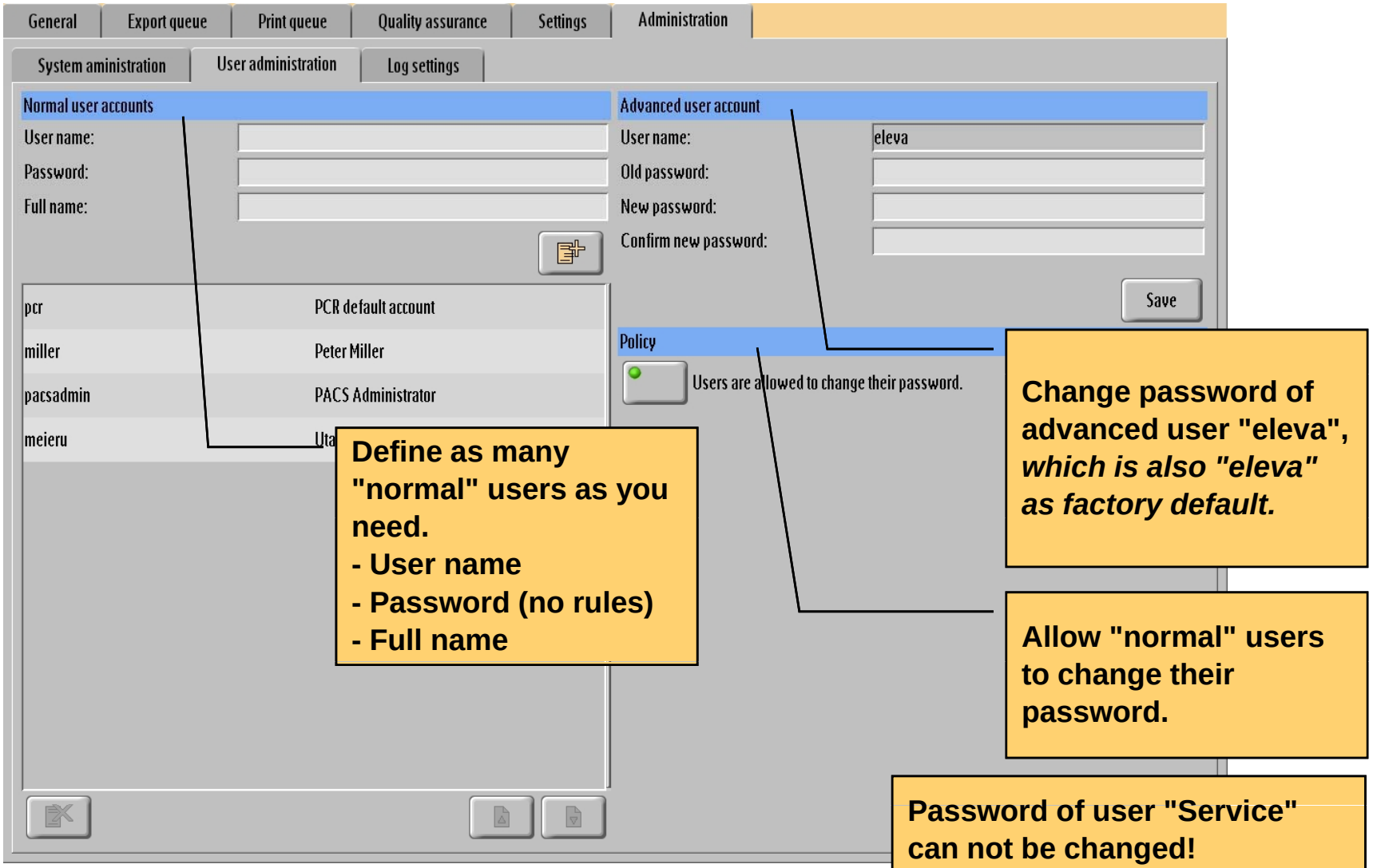
Advanced user can **set**

Country
> date and number formats

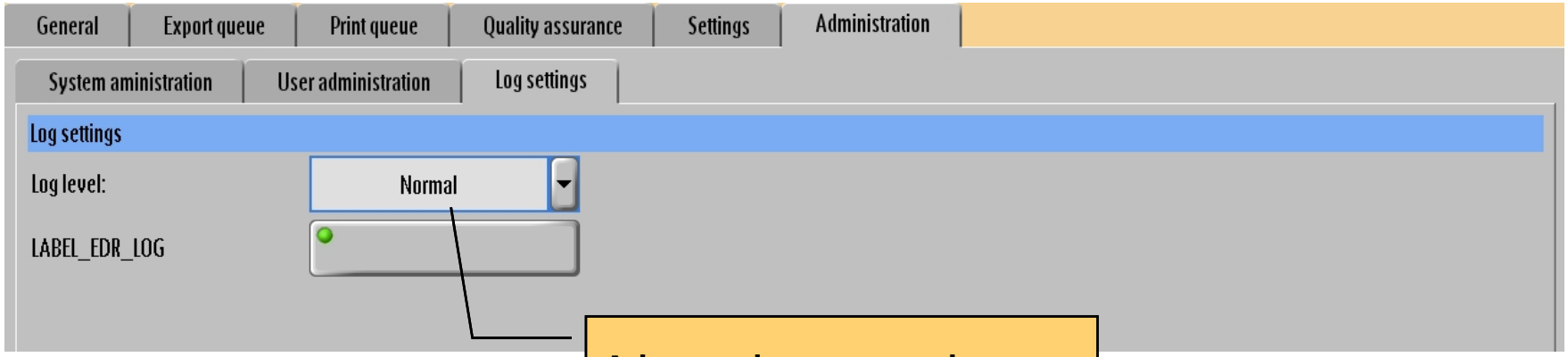
Language
> assortment depends on selected country

If you are lost in a foreign language, select the first Country "-->o<--"
----> You'll get English

Administration / Users



Administration / Log settings



Advanced user can raise internal log level, e.g. in case service asks for on the phone after an error report etc.

PHILIPS